

Published every Saturday by the
**Simmons-Boardman Publishing
 Corporation, 1309 Noble Street,
 Philadelphia, Pa.,** with editorial
 and executive offices: 30 Church
 Street, New York, N. Y., and 105
 West Adams Street, Chicago, Ill.

SAMUEL O. DUNN, *Chairman of Board*
 HENRY LEE, *President*
 LUCIUS B. SHERMAN, *Vice-Pres.*
 ROY V. WRIGHT, *Vice-Pres. and Sec.*
 FREDERICK H. THOMPSON, *Vice-Pres.*
 ELMER T. HOWSON, *Vice-Pres.*
 F. C. KOCH, *Vice-Pres.*
 ROBERT E. THAYER, *Vice-Pres.*
 H. A. MORRISON, *Vice-Pres.*
 JOHN T. DEMOTT, *Treas.*

CLEVELAND
 Terminal Tower
 WASHINGTON
 1081 National Press Building
 SEATTLE
 1038 Henry Building
 SAN FRANCISCO
 485 California Street
 LOS ANGELES
 530 West 6th Street

Editorial Staff
 SAMUEL O. DUNN, *Editor*
 ROY V. WRIGHT, *Managing Editor*
 ELMER T. HOWSON, *Western Editor*
 JAMES G. LYNE, *Assistant to Editor*

C. B. PECK
 ALFRED G. OEHLER
 F. W. KRAEGER
 E. L. WOODWARD
 J. H. DUNN
 D. A. STEEL
 R. A. DOSTER
 H. C. WILCOX
 NEAL D. HOWARD
 CHARLES LAYNG
 GEORGE E. BOYD
 WALTER J. TAFT
 M. H. DICK
 E. J. PHILLIPS
 JOHN H. KING
 W. H. SCHMIDT
 JOHN S. VREELAND
 C. L. COMBES

The *Railway Age* is a member of
 the *Associated Business Papers* (A.
 B. P.) and of the *Audit Bureau of
 Circulations* (A. B. C.).

Subscriptions, including 52 regular
 weekly issues, and special daily edi-
 tions published from time to time
 in New York, or in places other
 than New York, payable in advance
 and postage free. United States,
 U. S. possessions and Canada: 1
 year, \$6.00; 2 years, \$10.00; foreign
 countries, not including daily edi-
 tions: 1 year, \$8.00; 2 years, \$14.00.

Single copies, 25 cents each.

H. E. McCandless, *Circulation
 Manager, 30 Church St., New York,
 N. Y.*

Railway Age

With which are incorporated the *Railway Review*, the *Railroad Gazette*
 and the *Railway Age-Gazette*. Name registered U. S. Patent Office.

Vol. 107

October 7, 1939

No. 15

In This Issue

U. P. Adds to High-Capacity Motive-Power Fleet Page 515

A description of the Alco-built combination fast-freight and passenger loco-
 motives of the 4-8-4 type in which a number of important changes over preced-
 ing equipment are involved.

Roadmasters Discuss Problems at Chicago Meeting 519

Part II of the proceedings of the fifty-fourth annual convention of this associa-
 tion, in which two papers are abstracted and three additional reports presented.

A. A. R. View of R. R. Capacity 526

An address by M. J. Gormley, Executive Assistant of the Association of
 American Railroads, before the Atlantic Shippers' Advisory Board, in which he
 reviews the capacity of the railroads today.

EDITORIALS

New Allies for the Railways.....	511
September Equipment Boom	514

GENERAL ARTICLES

What Will the Traffic Bear?—34.....	513
U. P. Adds to High-Capacity Motive-Power Fleet	515
Roadmasters Discuss Problems at Chicago Meeting, Part II	519
Charles E. Denney to Head Northern Pacific	525
A. A. R. View of R. R. Capacity, by M. J. Gormley.....	526

NEW BOOKS 531

NEWS 532

REVENUES AND EXPENSES OF RAILWAYS 546

The *Railway Age* is indexed by the *Industrial Arts Index* and also by the
Engineering Index Service

Expedite Movements on **ENTIRE RAILROAD**

FOLLOWING the installation of "Union" Electro-Pneumatic Car retarders in a classification yard of an eastern railroad, delays to road trains have been minimized by reducing switching and classification at other points. As a result, freight car movements have been facilitated on the entire railroad. With a reduction in road train time, a decided reduction in overtime and an increase in locomotive utilization have been effected. This expedited traffic has resulted in making deliveries several hours earlier. The economies effected quickly liquidate the investment.



UNION SWITCH & SIGNAL COMPANY

SWISSVALE

PENNSYLVANIA

NEW YORK

ST. LOUIS



SAN FRANCISCO

CHICAGO

RAILWAY AGE

New Allies for the Railways

The war in Europe presents great dangers to the United States. Whether we become involved or not, it may finish destruction of the governmental and economic systems which have made the United States what it is. If we do become involved it may have this effect, and also all the other terrible effects of war. There are very powerful forces that probably will find even in war abroad additional arguments for the increased centralization of government and increased government control of and participation in industry that they were already promoting. If we should actually become involved there probably would be, after hostilities ended, so little left of our traditional governmental and economic systems that efforts to restore them would be futile. For this, as well as other vitally important reasons, the paramount present duty of every American citizen is studiously and thoughtfully to determine what policies and men are most likely to keep this country out of war, and then to fight to the limit for adoption of those policies and the election of those men.

Meantime our country is still at peace; and while this is the case we should all be giving much the greater part of our attention to our domestic conditions and problems. With so many efforts being made by partisans of different brands of "neutrality" and of different combatants to keep our minds on the war, it will be difficult to devote them mainly to the problems of peace. But, excepting that of keeping out of the war, our most important problems are those of peace. For we include preparedness in the problems of peace. First, as emphasized in an editorial in our issue of September 23, preparedness includes *economic* as well as *military* measures. Second, to have it known by the entire world that this country is both economically and militarily prepared will be our best possible protection against war.

Recovery, Preparedness and the Railroads

One of the most important things that could be done in behalf of both economic and military preparedness would be to solve our transportation problem. And our transportation problem is principally the problem (1) of enabling our *railroads* to contribute their share

toward the recovery of general business and (2) of putting them in condition satisfactorily to handle any volume of traffic that may be offered them whether this country stays out of or enters the war. Their contributions to general recovery should include increases in both their employment and their purchases to somewhere near the pre-depression levels. In August, 1929, they had 1,760,000 employees; in August, 1939, only 1,035,000. In the year 1929 their purchases of equipment and materials were 1,389 million dollars; in the first half of 1939 they were at an annual rate of only 528 million dollars. Recently both their employment and purchases have been increasing with unusual rapidity. This is what is necessary not only to enable them to contribute toward recovery but also to put them in condition for either peace or war; and increase in their employing and buying power is principally dependent upon increase of their net earnings.

Who Pays Highway Transportation Subsidies?

There could not be a better reason why the public should favor governmental action tending to increase their net earnings. But there are other important reasons, of which too little has been said, why some of the largest and most influential groups of people in the country should, in their own selfish interest, support legislation being advocated for solution of the railroad problem. For example, the question whether operators of buses and commercial trucks on the highways are—or should be—subsidized has been most forcibly raised by the railways. But it is actually of no more—or even less—importance to them than to other owners of large amounts of property and to some other industries.

If buses and commercial trucks are subsidized, who pays the subsidies? Not the railroads, excepting in small measure. In an article in "Civil Engineering" for September, Hawley S. Simpson, research engineer of the American Transit Association, gives an estimate that in 1937 expenditures for all city street and rural highway construction, maintenance and bond service (interest on highway bonds, etc.) totaled 2,170 million dollars and that special taxes levied directly and indirectly upon motorists in the same year totaled about 1,500 million dollars. Who paid that difference of

almost 700 million dollars—approximately one-third of the total? *Principally owners of real estate—farm owners and urban home owners.* Virtually all owners of real estate are also owners of automobiles. Should they be required to pay their share of the highway taxes levied on motorists, and also an *additional* one-third of all highway expenses *as owners of real estate?* If so, why? Because, it is replied, some highways are mostly, and all other highways are partly, “land serving” and therefore increase the value of real estate.

Highway Taxes Up—Real Estate Values Down

Those who make this claim may well be asked: Why has the *greatest decline in the total value of real estate* in this country's entire history occurred simultaneously with very much the *vastest expenditures on highways* in its history? The period since 1920 has been the period of huge spending on highways; and according to the Statistical Abstract of the United States for 1936, page 570, the value of farm land and buildings declined from more than 66 billion dollars in 1920 to less than 48 billion in 1930 and less than 33 billion in 1935. The total value of urban real estate also is much less than it was before all this spending on highways. These figures are certainly no evidence that huge spending on highways, and huge taxing of real estate to get the money *increases* the value of real estate.

What and where, then, is the evidence? Regardless of that, one thing is certain. The smaller is the amount of taxes that is collected from the owners of motor vehicles for meeting any given expenditure on highways, the larger is the amount of taxes that must and will be collected for that purpose from the owners of real estate; and the more taxes are imposed on real estate the more expensive it will become to own it, the less incentive there will be to improve it, and the more its value will tend to decline. Therefore, it *may* be to the interest of the highway builder, the automotive manufacturer and the commercial highway carrier to have the largest practicable part of highway taxes levied on real estate; but it is much plainer that it is to the interest of all owners of real estate, including farmers and home-owners, and also of the building industry to have the smallest practicable portion of highway taxes imposed on real estate and the largest practicable portion of them levied on motor vehicles. And it is obviously to the interest of all owners of real estate to have relatively the highest of all motor vehicle taxes levied on buses and commercial trucks; for almost invariably the operation of these vehicles *seriously reduces* the value of real estate adjacent to the highways on which they operate.

And How About Private Transportation?

In all parts of the country the railroads are trying to get the part of highway expenses paid by buses and commercial trucks increased as a means of reducing the sub-

sidies enjoyed by their operators; while in many parts of the country the owners of real estate and the building industry are resisting efforts to increase further the present heavy burden of highway taxes on real estate. Their interests are the same; and therefore they are trying independently to accomplish the same thing; but they don't know it. The railroads undoubtedly could get powerful support from owners of real estate and the building industry in every part of the country if they would do what is necessary to show their identity of interest in *reducing* highway taxes imposed on real estate and *increasing* those imposed on highway users.

Another huge class of the people whose interests are identical with those of the railroads, but most of whom don't know it, are all those who have to use common carrier transportation. The carriers competing for freight are usually divided into railways, water carriers, highway carriers and pipe lines. A division of them that is becoming more significant is into common and private carriers. The commodities clause of the Interstate Commerce Act prohibits the railroads from engaging in private transportation—in other words, from transporting any commodities they own for the purpose of selling them, excepting forest products. But the law does not forbid private transportation by any other carriers. A pipe line may transport oil owned and sold by the pipe line's owner. A barge line on an inland waterway may transport coal or steel owned and sold by the owner of the barge line. A truck line owned by a chain store company may transport goods owned and sold by the same chain store company. A truck operator may go to a coal mine or a farm, buy coal, grain, fruits or vegetables, carry them to the nearest town and peddle them there in competition with its local merchants.

Unfair Commercial-Transportation Competition and the Commodities Clause

There has been within recent years, and is still occurring, a great increase in these and other forms of private transportation. Why? Because manufacturing, mining and mercantile concerns able to engage in private transportation thereby gain advantages over all competing manufacturing, mining and mercantile concerns. Why, then, do not all such concerns engage in it? Because a great majority have not the necessary strategic geographical location or financial resources. A manufacturing or coal mining company, for example, usually cannot advantageously ship its freight by its own barge line unless it has plants located on a waterway. And most companies do not have enough capital and a large enough volume of business to combine commercial business in competition with the railroads.

What advantages are enjoyed by those who can and do engage in private transportation? (1) They usually carry it on by waterway or highway, thus getting the subsidies that government gives these means of transpor-

tation, while basing the *prices* they charge the public on the *rail rates*. (2) A private carrier (unlike a common carrier) can always wait for a backhaul, because its owner is the owner also of the freight it carries; and this reduces its empty mileage and its average cost of transportation per ton-mile. (3) All changes in the rates of railway common carriers are subject to government regulation, while there is virtually no regula-

tion of private carriers that are increasingly competing with them.

Equality in competition cannot possibly be established between the common carrier railroads and the vast majority of shippers who must use their service, on the one hand, and the much smaller number of big shippers now using private transportation, on the other hand, without the commodities clause of the Interstate Com-

What Will the Traffic Bear?—34

The average well-informed and practical student of transportation in railroad service or on the "outside" is fully cognizant of the methods and the rates which have been used by the truck and water lines to divert business away from the railroads. Every such observer is equally familiar with the steps which, if taken by the railroads, would put a large part of this diverted traffic back on the rails again.

So—the causes of the railroads' traffic losses being known (at least by some) and the remedies also, why isn't something done about it?

The answer lies in some very practical obstacles. One of these obstacles is the attitude of certain

road industry which hires a railroad officer and commands his first loyalty, but the X. Y. Z. Railroad on whose payroll his name appears. On the other hand, such understandable, and indeed laudable, hesitancy ought not indefinitely to block joint railroad action to meet a recognized threat to the industry as a whole. **A favorable percentage position in an industry rapidly losing its control of an important area of traffic eventually becomes something scarcely worth defending, in comparison with the restoration of the economic health of the whole industry.** Getting 20 per cent of \$10,000,000 is better news for stockholders than holding on to 30 per cent of only \$5,000,000 gross.

On the other side of this question, however, lies the fact that **railroads not having investments in or arrangements with forwarder or other transportation agencies can afford to make concessions to the carriers which do have such arrangements, to the end of inducing them to act in concert for the benefit of the industry as a whole.**

The benefits of winning traffic back from competitors to the rails ought to inure to the entire industry—and hence to each individual railroad. At the same time, it is clear that to make these changes will entail some initial sacrifices and some taking of chances. It is not fair that these sacrifices and chances should be laid on only a few companies—they should be spread around, just as the benefits will be. Anyhow, as a practical matter, allowances *must* be made for the carriers which have spent money to acquire forwarder and trucking connections whether their claims are freely conceded on theoretical grounds or not.

Many well-informed students believe that the solution to the merchandise traffic problem lies in consolidating the forwarding companies (many of which are now owned by individual railroads) and railroad-owned truck lines, perhaps under the aegis of the Railway Express Agency. Whether that is the ideal solution or not—certainly the *status quo* isn't. Many a girl has drifted into the old-maid status waiting around for her ideal of manhood to appear amongst her suitors.

One is also reminded of the story of the late Carl Gray's about the dear old sister who was satisfied in her own church's failure to progress because a rival church was not doing even so well. Meantime, merchandise traffic by truck in August was up 25 per cent as compared to an increase of only 2¼ per cent in railroad merchandise carloadings.

There should be no further delay by the railroads in finding a common ground of mutual understanding—because the only alternative is further rapid dissipation of traffic and assets, with government ownership lurking just around the corner.



shippers—but we'll take that up in a later article. Anyhow that obstacle is, perhaps, secondary. The primary difficulty arises from the close relations with, or investments in, forwarding or trucking ventures on the part of some railroads—relations meaning a great deal to these carriers in dollars and cents. It is an important question for railroad officers so situated as to what extent their obligations to their stockholders will justify them, economically or morally, in giving away a real competitive advantage they enjoy (and have paid for) in return for a promised benefit to the whole industry. That is to say, **proposed rate changes would benefit the entire industry—but a few railroads would have to make tangible sacrifices to achieve those benefits, while other roads would derive identical (or maybe even greater) rewards with no sacrifices at all.**

We do not criticize the hesitancy of officers of railroads so situated. After all, it is not the rail-

merce Act being broadened to prohibit *any company whatever* from engaging in both commercial business and transportation. And if all the business men of this country—especially small business men—understood all the evil effects now being produced by the government allowing private transportation to exist and grow in competition with common carrier transportation most of them would gladly join the railroads in advocating adoption of a commodity clause that would destroy all such private transportation.

We have shown in the foregoing why some powerful classes that don't know it now should be actively allied with the railways in their struggle for equal and fair treatment by the federal and state governments as regards both subsidies and regulation. There are others that should be. And the railroads will get the treatment from government that not only their own interest, but even more the public interest, demands they should when they so present their case as to show their true *selfish* interest to all the classes that should be allied with them.

September Equipment Boom

The resolve of the railroads to meet any increased traffic offerings by reason of a business jump in the "limited national emergency," announced several weeks ago by the A. A. R., has already been reflected in the statistics of equipment purchases during September. In that month orders were placed with equipment manufacturers and company shops totaling about \$80,200,000 (a rough estimate based on arbitrary current unit prices), which, together with very substantial shop programs already initiated to rehabilitate present equipment hitherto stored as unserviceable, is a dollars-and-cents measure of the carriers' "faith in a square deal."

Increases in buying during the month conform to the customary priorities given when traffic calls for speedy plant improvement. Thus, freight car orders showed the greatest increase over the previous quiescent months, while passenger car buying remained at a low level. Likewise, rail buying, a "must" item in preparing for greatly increased business, exhibited a steep upward curve from previous levels.

Domestic orders were placed during September for 24,231 freight cars. This total is more than double the number of cars purchased during the previous eight months of the year and exceeds the entire-year totals for each of 1938, 1935 and 1931 to 1933, inclusive. The total for the year thus far is thereby brought to 33,623 cars, or double 1938's all-year volume and 257 per cent greater than that year's January-September total.

The carriers ordered 52 locomotives during the month (23 steam; 20 electric and 9 Diesel-electric), which brings the three-quarter year total to 213 units. This is not far short of the 12-month total of 228 units ordered in 1938 and exceeds the entire-year totals of each of the years 1931 to 1935, inclusive. The passenger-train car field was quiet; a total of 3 cars were ordered which brings the total for the year thus far to 177 cars. It is to be noted, however, that this 9-months' total exceeds the figure of 118 cars for the corresponding period of 1938 by a comfortable margin.

A total of 188,854 tons of new rail was ordered during the month, representing about \$7,554,000 worth of business. Inasmuch as the rail buying year generally starts in October and continues heavy through February, this volume constitutes an early preparation for next year's installation. Its tonnage exceeds that of any month last year and is not far from the January total this year. Thus far this calendar year, the carriers have ordered a total of 721,737 tons, or almost four times the tonnage ordered in the corresponding period of 1938.

* * * *

Pollyanna Seems to Be Writing the Propaganda for the So-Called "Highway Users Conference"

"The new development of highway transportation, based upon the improved road and the efficient motor vehicle, is re-making America.

"Two out of every three families in the United States own a private car, ready to move anywhere at any time at their bidding. The motor vehicle has expanded greatly the realm of better living, and it provides billions of hours of human happiness each year to the American people. For every seven families in the United States there is one truck at work transporting food, clothing, building and other materials, contributing immensely towards the comfort and well-being of the people.

"This new force of highway transportation is dynamic. Its benefits to the people are still expanding. As better motor vehicles are produced and as the highways of the nation are improved, the automobile becomes more and

more an integral part of our daily lives, lifting the horizons of immobility that handicapped and limited mankind from the beginning of time.

"The economic and social benefits, the contributions to advancing American standards of living, that arise from the new highway transportation are almost beyond calculation.

"The isolation of the farm has been banished by the motor vehicle. Economical transportation of goods from producer to consumer has been provided. This tends to reduce the cost of living. It affords greater opportunities for initiative and enterprise.

"The new highway transportation gives jobs to more than 6,000,000 persons. It is an energizer, an economic stimulator. Its influence is felt by every principal business activity in this country."

The honeyed phrases above are the opening paragraphs of a public-bamboozling booklet being widely circulated by the propaganda bureau for the truck manufacturers and their allies.



One of the Fifteen 4-8-4 Type Passenger and Fast Freight Locomotives Built for the Union Pacific by the American Locomotive Company

U. P. Adds to High-Capacity Motive-Power Fleet

Alco-built combination fast-freight and passenger locomotives of 4-8-4 type involve a number of important changes from the preceding lot

FIFTEEN 4-8-4 type high-speed freight-passenger locomotives are now being delivered to the Union Pacific by the American Locomotive Company. The design is a further development of the twenty 4-8-4 type locomotives which were built by this same company for the Union Pacific in 1937. It was one of these locomotives that attained the highest speed in the A. A. R. tests, when it hauled a 16-car 1,000-ton train westbound to Grand Island with a maximum speed of 89 miles an hour, and eastbound on a slightly descending grade 102 miles an hour.

The new locomotives will operate in pool between Omaha, Neb.; Cheyenne, Wyo.; Denver, Colo.; Ogden, Utah, and Salt Lake City, and Huntington, Ore., the longest through runs being Omaha to Ogden, 990 miles; Omaha to Salt Lake City, 1,026 miles, and Omaha to Huntington, 1,394 miles. They will be used largely in conventional passenger-train service, handling the Challenger, Overland Limited, Los Angeles Limited, Portland Rose and Pacific Limited trains. The ruling grade westbound, in this territory is 1.55 per cent and eastbound 1.14 per cent. They are capable of operating continuously under maximum horsepower output at 90 miles an hour on the Union Pacific Lines. Calculations were based on 110 miles an hour design speed, with 100 miles an hour operating speed. The locomotives will negotiate curves of 20 deg.

A comparison of the principal dimensions of the two orders of locomotives is shown in the table. The cylinder diameter of the new locomotives has been increased from 24½ in. to 25 in. and the driving-wheel diameter from 77 in. to 80 in. The same boiler pressure, 300 lb., has been retained. The tractive force, 63,800 lb., is also practically the same.

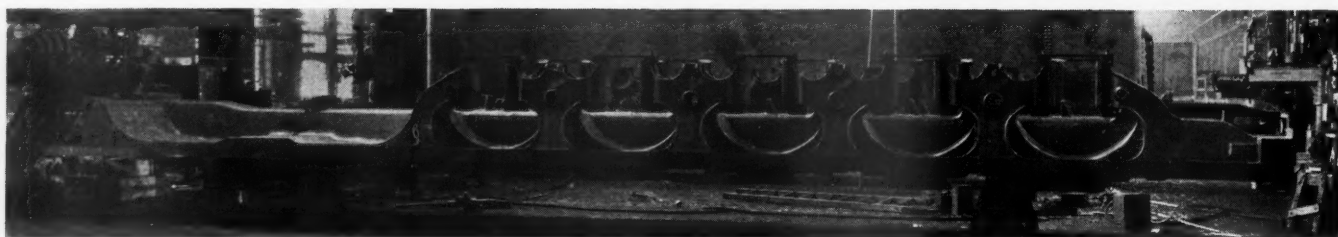
The boiler is equipped with a Type E superheater. It has 184 flues 3¾ in. in diameter, and 50 tubes 2¼ in. in diameter, 19 ft. in length. This is 18 in. shorter than the tubes and flues in the boiler equipped with the Type A superheater on the original design. That length has been added to the combustion chamber which is now 90 in. long as compared with 72 in. on the earlier locomotives. The firebox is the same width and length. The

firebox tube sheet is welded to the combustion chamber and firebox crown sheet, and the firebox door sheet is welded. The back corners of the mudring retain the large radius. The boiler is supported on the Commonwealth bed casting by a sliding shoe, immersed in oil, which takes the place of the conventional waist sheet, and is located at the center of the boiler. In order to give added stiffness, the smokebox liner is extended upward to the center line of the boiler.

The fireboxes are fitted with Firebar grates. There is a Sellers exhaust steam injector on the left side of the locomotive and a Nathan non-lifting injector on the right side. The stoker is the Standard type BK. Wilson blow-off cocks and sludge removers are used.

The smokestack is 26½ in. in diameter at the choke and has a continuous taper from the choke to the top of the stack. The exhaust pipe is the railroad's standard





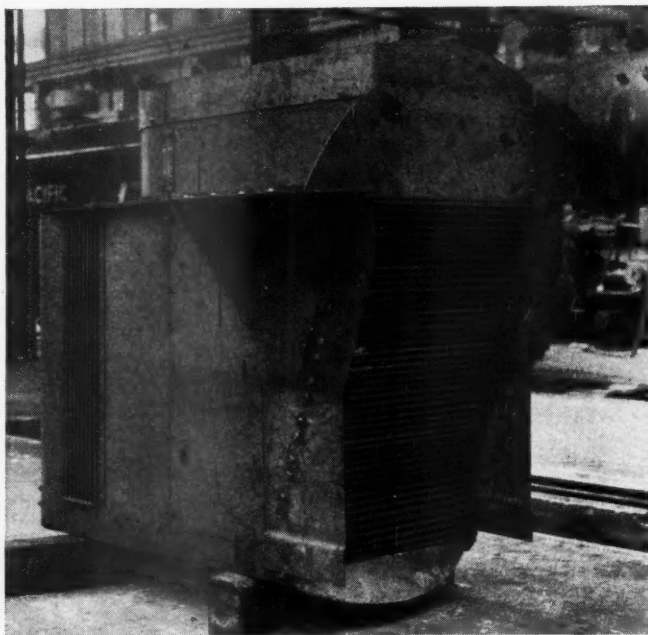
General Steel Castings Water-Bottom Tender Frame Inverted—Pedestals for Five Pairs of Wheels Are an Integral Part of the Casting

multiple-jet type having four nozzles $3\frac{7}{8}$ in. in diameter located on a circle 13 in. in diameter. All exhaust ports through the cylinder and into the exhaust pipe have been made exceptionally large. In the smokebox is the Locomotive Economizer Corporation's front-end arrangement.

The engine truck on these locomotives is of the Alco design similar to those applied to the previous order, except that an improved spring suspension has been employed. Instead of the spring-borne load being carried on a single semi-elliptic spring on each side, this load is divided. Only approximately one-third is carried on the semi-elliptic spring; the other two-thirds is carried on coil springs. This has the advantage of using a much shallower semi-elliptic spring which is therefore more flexible, but the initial shocks are absorbed by the coil springs.



Looking Down into a Partially Completed Tender Tank



The Locomotive Economizer Company's Spark Arrester Ready for Installation

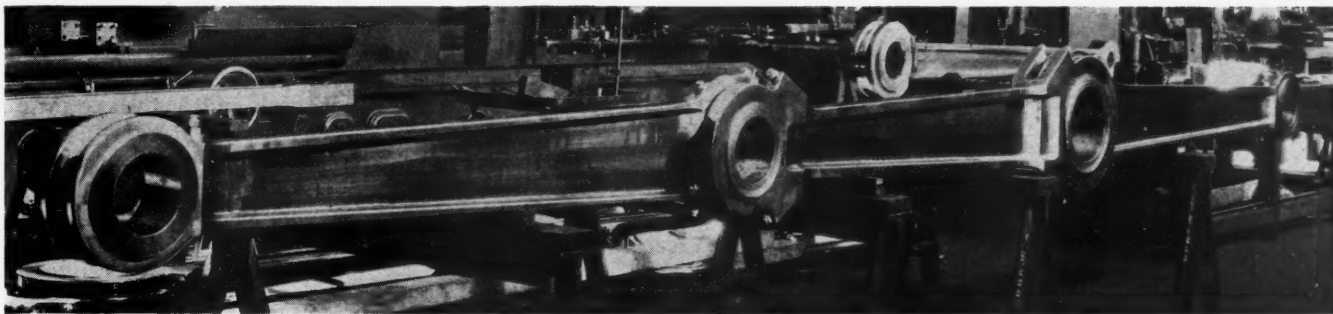
The side frames of the truck are formed with pedestals in which the roller-bearing housings fit. Between the top of the roller-bearing housings and the engine-truck frames is interposed a pad of Fabreeka for the purpose of absorbing the rail vibration before it can enter the truck side frame.

The Alco geared roller-centering device has been designed with roller surfaces machined to produce the resistance desired. The initial resistance is about 17 per cent of the spring-borne load for a distance of 1 in. each side the center, changing at this point to $33\frac{1}{3}$ per cent resistance and remaining at this figure throughout the range of the lateral travel.

The swing frame in which the swing bolster fits is protected front and back with hardened-steel renewable

Comparison of Principal Data for Union Pacific 4-8-4 Type Passenger and Fast Freight Locomotives

	1937	1939
Date built	American Loco. Co.	American Loco. Co.
Builder	20	15
No. built	63,600	63,800
Rated tractive force, engine, lb.		
Weights in working order, lb.:		
On drivers	270,000	270,000
On front truck	81,200	94,000
On trailing truck	113,800	119,000
Total engine	465,000	483,000
Tender	366,500	406,500
Wheel bases, ft.-in.:		
Driving	21-6	22-0
Engine total	49-3	50-11
Engine and tender total ..	97-6	98-5
Driving wheels, diameter outside tires, in.	77	80
Cylinders, number, diameter and stroke, in.	2-24½ x 32	2-25 x 32
Valve gear, type	Walschaert	Walschaert
Valves, piston type, size, in..	12	12
Maximum travel, in.	7	7



The Side Rods—The Crank Pins Function as Knuckle Pins

Boiler:		
Steam pressure, lb.	300	300
Diameter, first ring, inside, in.	86-3/16	86-3/16
Firebox length, in.	150-1/16	150-1/32
Firebox width, in.	96-3/16	96-3/16
Combustion chamber, length, in.	72	90
Arch tubes, number and diameter, in.	5-4	5-4
Superheater, type	A	E
Tubes, number and diameter, in.	201-2 1/4	50-2 1/4
Flues, number and diameter, in.	58-5 1/2	184-3 3/4
Length over tube sheets, ft.-in.	20-6	19-0
Grate area, sq. ft.	100.2	100.2
Fuel	Bituminous coal	Bituminous coal
Stoker, type	BK	BK
Heating surfaces, sq. ft.:		
Firebox	422	422
Arch tubes	57	57
Firebox, total	479	479
Tubes and flues	4,118	3,971
Evaporat. htg. surface, total	4,597	4,470
Superheat. htg. surface	1,473	1,900
Combined evap. and superheat.	6,070	6,370
Tender:		
Style	12-wheel	14-wheel
Water capacity, gal.	20,000	23,500
Fuel capacity, tons, level full	25	25

wearing plates. Mechanical force-feed lubrication is provided on these sliding surfaces as well as on the center-plate bearing.

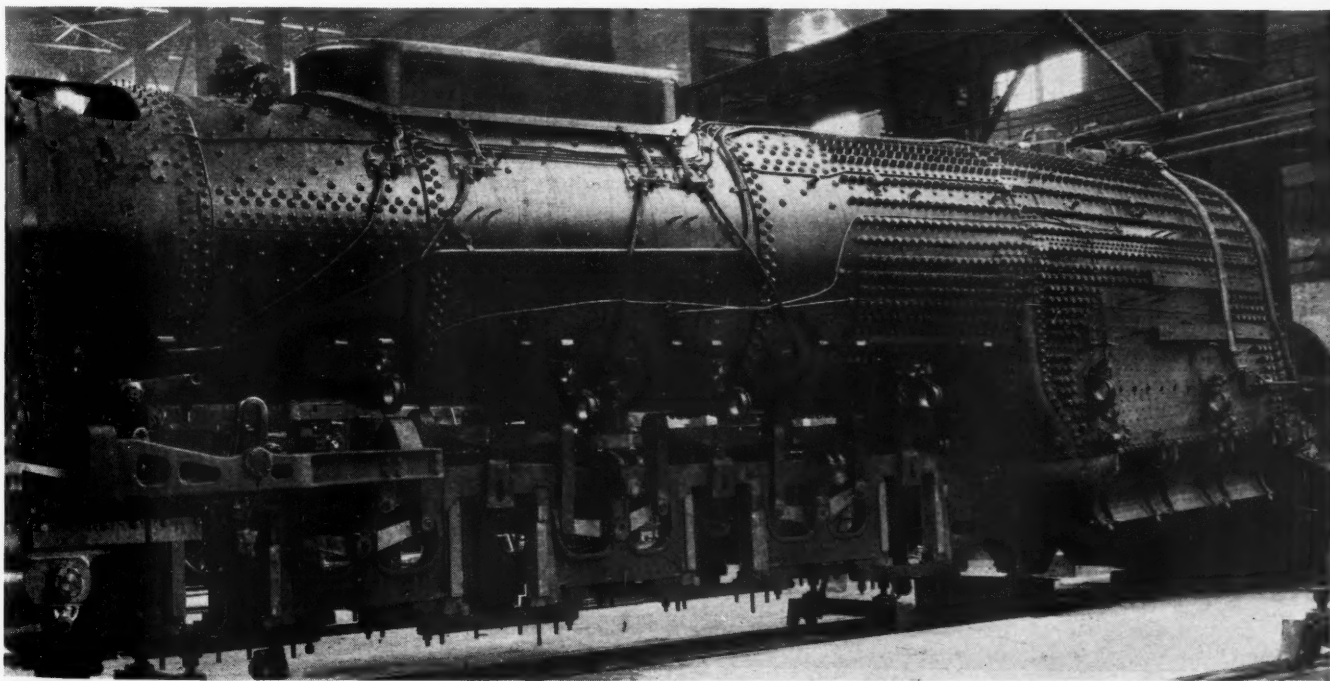
On 10 of the locomotives the engine truck, the driving axles, the trailing truck, and the tender journals are

all fitted with Timken roller bearings. On the other five locomotives all of these journals have SKF roller bearings. On the engine trucks of the locomotives equipped with the SKF roller bearings, the upper half of the bearing housings extends from side to side, while the lower half is simply long enough to enclose the roller bearings.

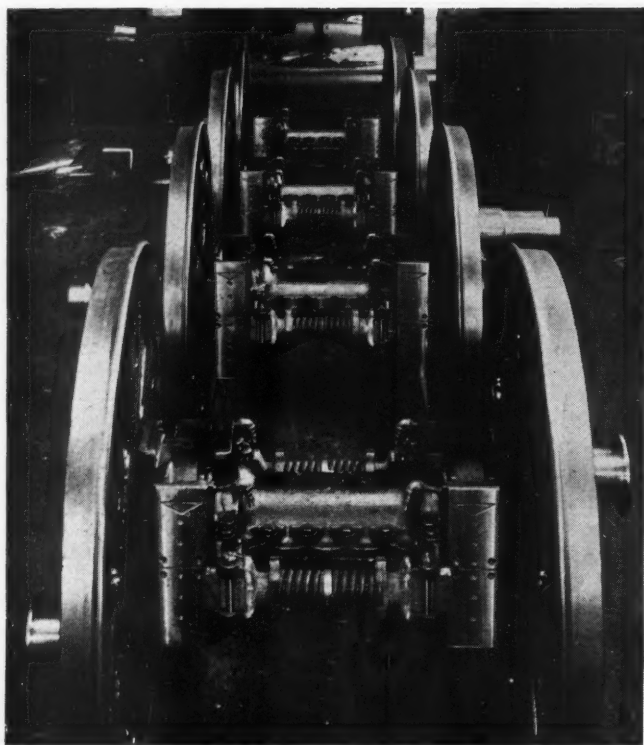
A feature of the driving-spring suspension is the use of the coil springs at the dead ends of the spring rigging. At the front end of the locomotive is a cross equalizer, and connected to the equalizer at points inside of the frames are spring hangers which pass through coil springs seated against the underside of the bed casting.

A similar cross equalizer is applied at the rear end of the back driving springs and the hangers which connect to the front ends of the trailing-truck equalizers pass through coil springs on their upper ends which are seated in this cross equalizer. The rear trailing-truck spring hanger is also connected through a coil spring to the trailing-truck frame. The trailing truck is the Commonwealth four-wheel delta type.

Each of the driving axles, with the exception of the rear axle, is equipped with the Alco lateral cushioning device. On the front driving axle a lateral movement of 3/4 in. each side of the center is provided and the initial lateral resistance is approximately 17 per cent of the spring-borne load, increasing at the rate of about 2,000 lb. for each 1/8 in. of travel. The cushioning devices on



The Boiler in Place on the Bed Casting



Alco Lateral-Cushioning Devices Are Applied on the Front, Main and Intermediate Pairs of Driving Wheels

the second and third driving axles furnish $\frac{5}{16}$ in. lateral movement each side and have an initial lateral resistance 8 per cent of the spring-borne load, increasing at the same rate as for the front axle.

The piston valves are the Hunt-Spiller lightweight type with Duplex sectional packing rings. Cylinder and valve bushings are also of Hunt-Spiller gun iron.

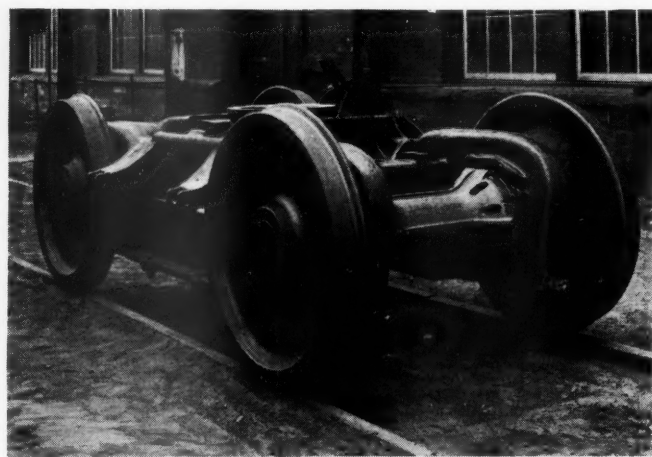
The valve motion is the Walschaert type, controlled by the Franklin Type E reverse gears on ten locomotives

and Alco reverse gears on the other five. The maximum valve travel is 7 in. All valve-motion parts are fitted with the McGill type needle bearing, as is also the front end of the eccentric rod. The back end of the eccentric rod has an SKF self-aligning type bearing. Valve-motion parts have Alemite fittings for soft-grease lubrication. Mechanical lubrication takes care of the steam chest, cylinder barrels, stoker engine, throttle, driving-box pedestal faces, driving-box automatic wedges, trailing-truck pedestal faces, guides, radial buffer, reverse gear, engine-truck center plate, and trailing-truck center plate.

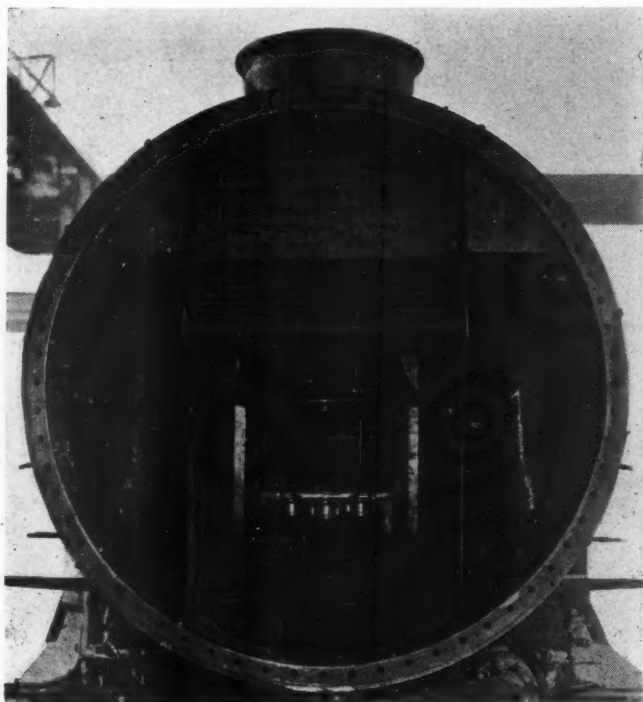
The cab is entirely supported from the boiler, which eliminates the relative movement between the two as the boiler expands and contracts. It is also equipped with the railroad's vestibule curtain arrangement.

All truck wheels are 42 in. in diameter, the same size wheel being used on the engine truck, the trailing truck and the tender.

The tender is a new type of exceptional design and capacity. It has a four-wheel leading truck followed by ten wheels in pedestals, all equipped with roller bearings.



Alco Engine Truck with a Combination of Coil- and Elliptic-Spring Suspension



Front of the Spark Arrester Removed to Show the Exhaust Tips and Stack Extension

It has a cast-steel water-bottom frame with integral cast-in pedestals.

The five pedestal wheels on each side of the tender are equalized together, with one semi-elliptic spring and two coil springs over each box. The front and back end of each set of equalization is attached to the frame through a cushioning coil spring. Between each box and the semi-elliptic spring saddle is a Blunt centering device to resist lateral movement. On the front and back axles this resistance is 17 per cent, and on the intermediate axles it is 8 per cent. The Blunt centering device is made up of an upper and lower seat with three intermediate rollers which are engaged by means of gear teeth to the upper and lower seats to insure positive and simultaneous rotation. Each pedestal liner is made up of two hardened spring-steel plates between which is bonded $\frac{1}{2}$ in. of laminated rubber. A total lateral play of $1\frac{1}{4}$ in. is provided on each side of axles Nos. 3, 4, 5 and 6, and $\frac{3}{4}$ in. on each side of axle No. 7.

The tender leading truck is the General Steel Castings Corporation four-wheel equalized type with a roller centering device providing for 17 per cent initial and 33 per cent constant resistance.

There are clasp brakes on all tender wheels. The truck construction is regular but there is an individual brake cylinder for each pair of pedestal wheels.

(Continued on page 531)

Sturdy Construction Characterizes This Section of Main Line on the Eastern District of the Erie, in New York



Roadmasters Discuss Problems at Chicago Meeting

A GENERAL account of the activities of the fifty-fourth annual convention of the Roadmasters and Maintenance of Way Association, held at Chicago on September 19-21, appeared in the *Railway Age* of September 30, including abstracts of the opening addresses, an address by R. H. Smith, vice-president and general manager of the Norfolk & Western, on Safety Practices in the Maintenance of Way Department, and three committee reports, dealing with the qualifications and duties of roadmasters, the maintenance of curves for high-speed trains, and the utilization of roadway machines. This issue also included reference to the exhibit of track materials and equipment presented by the Track Supply Association in conjunction with the convention.

Other features of the convention, abstracts of which are presented on this and following pages, included an address by W. H. Hillis, engineer maintenance of way of the Chicago, Rock Island & Pacific, on High-Speed Trains and Track Maintenance; a paper by C. B. Bronson, inspecting engineer, New York Central System, on Trends in the Manufacture and Maintenance of Rail; and reports on the three following subjects: Heaving Track, Its Causes and Control; Anchoring Track to Meet Present-Day Conditions; and Specialized Versus Section Gangs.

Heaving Track, Its Causes and Control

In its study, the committee, of which L. J. Gilmore, division roadmaster, Great Northern, was chairman, found that where heaving occurs, (1) there is an excessive amount of moisture in the roadbed; and (2) the character of the soil of which the roadbed is made is one that will hold free water against gravity and will also cause moisture to rise in it by capillary attraction from a lower water table. Turning to the origin of the water found in wet roadbeds, the committee listed these sources:

Abstracts of two papers and three additional reports presented at fifty-fourth annual convention of their association

Part II

(1) natural precipitation (rain and snow); (2) overflow from higher areas; (3) side-cut or side-hill seepage; (4) springs; and (5) the natural water table.

Recognizing that drainage or control of the troublesome water is the cure for heaving, the committee discussed at length the disposal of the water from each of the foregoing sources, and passed on to a discussion of soil studies and of the character of the material from which the roadbed has been constructed, stating that "these studies of factors in railway and highway foundations show definite prospects of benefit."

In dealing with soil for roadbed use, the committee considered two principal kinds of harmful soil moisture—gravitational water, which is free to move under the influence of gravity, and capillary moisture, which clings to the soil particles through surface tension and passes through the soil by capillary attraction from wet to drier soil. It stated that there are three fundamentals of interest in the discussion of heaving track: (1) Clay soil will hold more moisture against gravity than any other type of soil, (2) clay soil, because of the fineness of its pores, has more capacity for capillary attraction which causes water to rise in it above the water table; and (3) clay makes the poorest foundation for a roadbed. The committee added that "excess moisture in sub-

grade soils makes an unstable foundation. It decreases bearing value during the summer months and causes unequal heaving during the winter period. Soils that are thoroughly dry will not heave when frozen and therefore have no appreciable shrinkage when the frost goes out, for which reason dry soils are the most satisfactory for railway foundations. However, the poorest of soils can be transformed into stable subgrade material by removing the water from them."

To permit more detailed discussion of the control and cure of heaved track, heaving was divided into three classes, (1) early winter heaving which is caused by water in the ballast section; (2) late winter heaving, which results from sub-surface water in the roadbed; and (3) combinations of both. Likewise, the more common controls were listed, including (1) surface drains; (2) subsurface drains; (3) application of ballast and surfacing the track; (4) removal of troublesome subgrade material and backfilling with a more pervious material; and (5) raising the roadbed to a level sufficiently above the water table to prevent capillary water from having any effect.

Early winter heaving, which occurs generally from December 20 to January 10 and which is usually light, requiring shims of only from $\frac{1}{4}$ in. to 1 in. in thickness, was attributed by the committee to the fact that the ballast is old, is badly fouled with windblown dirt, decayed vegetation, etc., and has thus lost its permeability. "In general," the committee said, "such ballast has lost its effectiveness for maintaining drainage to such an extent that it retards the free flow of water against gravity, and the autumn rainfall is held in it. When this water, accumulated in the ballast and on the top of the subgrade, freezes, it causes uneven surface heaving, much of which is so slight that it cannot be shimmed, yet is sufficient to cause choppy track. Stretches of track thus affected may be treated successfully by giving it an out-of-face lift of 10 to 14 in., using a clean, sound, porous material for the new ballast."

Late winter heaving and combinations of both early and late heaving, the committee explained, occur after the frost penetrates to its maximum or approximate maximum depth into the roadbed, and are caused by the uneven distribution of moisture in the saturated roadbed soil. If the water table is at such an elevation that it can be lowered by sub-surface drainage, the committee recommended that this be done. If this is not feasible, the committee recommended that the surface ditches be widened and deepened, and that the grade of the roadbed be raised on a pervious material of low capillarity to a sufficient height to prevent capillary water from reaching up into the roadbed to a point above the frost line. If neither of these methods is practical, the committee then recommended that the unstable material be removed to a sufficient depth and width to insure stable conditions and that it be replaced with sound, pervious material.

In conclusion, the committee offered five suggestions, looking to a reduction in the number of shims necessary to place, these being (1) that all surface ditches be cleaned and well maintained and that intercepting ditches be given the same attention during the summer season to insure full benefit during wet weather; (2) that the spot that heaves be given a light out-of-face lift of one or two inches and that the track be placed in proper line late in the summer; (3) that if the track is boxed in so that natural precipitation stands on the surface, the track be given an out-of-face lift, leaving considerable crown to the ballast shoulder to insure better run-off of late fall rains; (4) that certain places where heaving occurs be marked during the winter so that the track can be dug down late in the fall, placing summer shims on the ties

so lowered, which can be reduced in thickness and removed as heaving progresses; and (5) that for best results the high rail be smoothed first and the low rail be brought to level, being sure to maintain good line and uniform gage at all times.

In closing, the committee emphasized that there is no substitute for a stable substructure for the track, and that it was the belief of the committee that expenditures to cure heaved track will prove worth-while investments and will pay dividends in decreased annual maintenance costs.

Considerable interest was manifested in the use of salt as a means of preventing the heaving of track at locations where drainage is not practicable or where the cost of shimming would be excessive. The salt acts as an anti-freeze and is applied to the roadbed in a quantity determined by the severity of the condition. It developed that salt is being used widely in Canada for this purpose, and that satisfactory results are being obtained. It was emphasized in the discussion that heaving is due to the presence of water in the roadbed, and that by removing the water, not only is the heaving prevented but troublesome soft spots are eliminated.

Trends in the Manufacture and Maintenance of Rail

By C. B. Bronson*

The outstanding achievement in rail manufacture since the transition from Bessemer to open hearth steel is the thermal treatment of rails. This includes the processes known as controlled cooling and Brunorizing. The significance of these processes lies in the fact that a commercial solution is now available and in effective use for eliminating the most troublesome defect ever encountered in rails, namely, the transverse fissure.

While great hopes and expectations may be held out for thermally-treated rails, one must not be led astray in the belief that the treatment is an effective cure-all. Either process has little, if any, effect on such old-time failures as crushed and split heads, base breaks and splits in the webs and through bolt holes. Let me caution that the occurrence of fissures will remain unabated for several years. Rail purchases at the present rate will require 20 years to replace even the rails in important main lines. Increases in purchases will naturally decrease the length of the period of replacement, but at best, a number of years will be required before substantial beneficial effect will be felt. I do not share the alarmist's attitude that the fissure problem is becoming increasingly serious, even in the face of the fact that the number of fissures found has increased considerably during the last few years. There are definite reasons for this increase in the number of fissures being found.

The manufacturers have accepted their increased responsibility to the railroads and the traveling public in providing rails to meet present-day requirements. Progressive steps in manufacture have been instituted, the first of which is the placing of the responsibility for the quality of rail steel under the metallurgical department at several plants, instead of relying entirely upon the judgment of the operators, who are somewhat more concerned with tonnage production. Furthermore, the responsibility for the finished product now rests with the inspection department.

A radical change has developed in steel making in the elimination of recarburizing. The old practice was to burn out or reduce the carbon to 0.15, or even lower,

* Inspecting Engineer, New York Central System, New York.

and then, about one-half hour before tapping, to add molten iron to restore the carbon to the approximate average analysis of the specification. The improved practice "catches" the carbon near the specified top limit and then, by skillful maneuvering as the carbon drops to the specified range, to tap the metal from the furnace. This is possible through a very ingenious device known as a Carbometer, which permits the melter to obtain an almost instant knowledge of the carbon content of the bath.

Constant temperature checks are made by the metallurgical department, not only of the pouring, or tapping, but also of the ingots and of the rolling of the blooms and rails and their finishing temperature. Unavoidable delays may and do occur to upset the normal and desired routine, but the newer methods are a long step in advance over the haphazard methods which one must admit occurred to some extent in the past.

Rail output, as indicated by the foregoing, has become an increasingly complicated affair. The universal use of thermal treatment is one complication, as rails so treated do not appear in the finishing department until 24 to 36 hours after rolling, and require rehandling, in some cases against the normal flow of the rails from the mill. End hardening, the all-ingot nick and break test, and the milling and chamfering of rail ends add to the complexity and slowing up of normal output as compared with the past. In this connection, a note of warning is in order—that piled-up abnormal demands for rail shipments in the spring season cannot be met, and that a greater spread in deliveries will be necessary, especially if larger rail programs should develop. Late deliveries for many roads will occur if the demand is wedged into a few months just ahead of the usual rail-laying season.

Greater demands are now made for the primary end hardening of rails at the mills, instead of in the field, which adds materially to the confusion of making shipments. End hardening of a normal output of rail is a considerable task, even with three working shifts a day, without seriously blocking the loading platforms and delaying shipments. End hardening at the mill has certain advantages over field work, principally because in the case of the latter, the hardening lags behind the rail laying, and in the interim, batter commences on the soft decarburized top of the rail head. Studies also indicate less spread in hardness in the case of the mill-hardened rail ends. In connection with rail end-hardening, consideration should be given to the hardening of the receiving ends of rails only on lines with one-way traffic, as little batter is now noted on the leaving ends. No difficulty is involved in identifying the hardened and unhardened ends for correct service installation. Surface grinding is inevitable on end-hardened rails at some future date, dependent upon the volume of traffic carried, and if delayed too long, secondary batter will develop beyond the hardened zone.

Continuous welded rail is also a live subject, about which much information is now available. A wide difference in basic data has developed as the result of the several methods practiced, and one cannot deny that the special studies made have shown that some types are inferior in physical strength and solidity, with lower fatigue resistance or carrying capacity. Several interesting problems originated with the installation of continuous welded rail, one of which was how to offset expansion or contraction with temperature changes. Many types of rigid clips or fastenings have been developed in an attempt to anchor rails. Even previous to the welding of joints, certain track structures had been developed to make rails act integral with the ties. As the result of careful studies of the stress distribution along the length of continuous

welded rails, questions have arisen as to whether all of this anchorage is essential. Furthermore, it is still an open question whether the transferring of the movement from between the rail and the tie plate to between the tie and the ballast bed is desirable, and whether this disturbance will increase the amount of tie tamping to hold proper surface.

Modern mechanical methods of laying rail have speeded up rail laying to a considerable extent. The boast is often heard that a relatively large amount of rail or track was laid per day. This is all very desirable, but the question may be asked whether this was done at any sacrifice in the quality of work? No one questions the desirability of laying as much rail per day as possible, but do not overlook quality work.

Some agitation has been started to increase the carbon content of controlled-cooled rails on the false premise that flow is due to softness resulting from the treatment. The writer knows from numerous checks on many roads that this contention is without foundation, and is more likely due to hasty initial laying, resulting in poor line and surface, with the excessive truck nosing and rocking which result.

When building up rail ends, the entire joint assembly and its supporting ballast and track structure must be taken into account. Thus, renewal of bars and bolts, a possible change of the plates on the joint ties to those of heavier design and effectiveness, anchorage and other features must be weighed along with building-up programs; otherwise the full effect of the building-up work will not be realized.

The chief concern of those directly connected with the maintenance of track is not so much what can be done with the small percentage of new rail received from time to time, but rather the far greater problems presented by the miles upon miles of old rail in track, to get the utmost out of it. Many miles of alleged worn out rails can be restored to service and at nominal expense by such economical means as the reconditioning of joints, the building up of rail ends and proper surface grinding, coupled with a fair percentage of tie renewals and a surface lift. These measures will extend the life of a large mileage of rail until financial conditions will permit the greater expenditure for a complete renewal job, involving the installation of heavier rail and fixtures, and a large program of tie renewals and ballasting.

Anchoring Track to Meet Present-Day Conditions

Anchoring Track to Meet Present-Day Conditions, was the subject of a report by a committee of which J. J. Clutz, supervisor, Pennsylvania, was chairman. According to the committee, two primary factors cause rail movement of such magnitude that anchorage is necessary, the first being expansion and contraction, which take place with temperature changes, while the second is the effect of train movements over the rail. Without anchorage, the rail will run irregularly, resulting in places where the expansion stresses are concentrated and where the track may buckle or warp out of line or surface so badly in hot weather that a derailment results. At others the joints will be open, resulting in a concentration of the contraction stresses in very cold weather, which may shear the joint bolts at one or more joints, leaving the rail ends free.

Emphasis was placed on the fact that inadequate anchorage, resulting from either an insufficient number of anchors or improper maintenance, affects general track maintenance directly, and that slued ties result, causing

irregular line and tight gage; while anchor ties are moved off their bed, resulting in poor surface. Among other undesirable effects of rail creepage, the committee mentioned the fact that at turnouts, crossovers and crossing frogs, movement of the rail is especially hazardous, since it may distort the entire turnout assembly, throwing it out of line and gage, and making the switch difficult to throw, causing very rough riding. Creepage of rails may move interlocked switches so much as to cause switch failures and consequent train detention.

In making this study, the committee concluded that hard-and-fast rules cannot be laid down for the number of anchors to be used on a given stretch of track, since the factors affecting rail movement vary too widely. For this reason, it was stated that the purpose of the report was to study the factors affecting rail movement, and the progress made to date in the art of anchoring rail, and to set forth the best known practice for maintaining rail anchorage.

Observation, the committee said, has shown that rail naturally tends to move more downhill than uphill. It also tends to move more on curves than on tangents. On single track or on multiple track used in both directions, the general tendency is for the rail to move in the direction of the heaviest tonnage. However, it cited a number of cases where the movement was opposite from that to be expected normally.

In the application of rail anchors, the committee mentioned the desirability of applying them when the rail is laid, to preserve the temperature expansion gap at each joint before any trains have passed over the rail. Mention was also made of the desirability of placing the smaller end of the anchor on the outside of the rail where it is less likely to be damaged by wheel flanges in case of a derailment, and where there is less likelihood of a wheel flange driving the anchor down against the rail base, nicking it and causing a broken rail.

The committee preferred a uniform distribution of the anchors through the rail panel and that they be applied to the opposite ends of the same ties to minimize tie sluing. Emphasis was placed on the desirability of applying the anchors against sound ties, preferably those having vertical sides, to afford a good bearing for the contact face of the anchor. For this reason, it said, they should be applied snugly against the tie face, so that they will not have to be driven along the rail base to bring them into contact with the tie. If it is known that the rail has a tendency to run backwards, it pointed out, sufficient reverse anchors should be applied to counteract this tendency.

Since a rail anchor not in contact with a tie performs no function and is, therefore, of no value, the question of anchor maintenance was given consideration. It was the committee's belief that when any work is done, such as the renewing or spacing of ties, the cutting in of longer or shorter rails to restore correct joint expansion openings, and other similar work, the rail anchors affected should be removed and be reapplied snugly against the ties, but never driven along the base of the rail. Again, rail anchors that have ceased to function as such, as a result of springing, breakage of parts, corrosion, etc., should be replaced promptly, it said.

In considering other factors that affect rail anchorage, it was mentioned that where double-shoulder tie plates are used, if they fit snugly against the rail, they tend to lock the rail base and offer considerable resistance to rail movement. They also contribute greatly to the general stiffness of the track structure. The committee found, therefore, that where double-shoulder plates are applied out-of-face, a reduction of approximately 25 per cent in the number of anchors can be made, compared

with similar track laid with single-shoulder tie plates. Turning to ballast, the committee reported that rail anchors are, of themselves, of no value if there is not enough ballast of the right kind to hold the ties in position by resisting the stress arising from the anchors. For this reason, it said that the tie cribs should be filled and there should be an adequate shoulder of ballast in the intertrack space. In evaluating the different types of ballast as an aid to rail anchorage, the committee stated that the anchoring value of ballast corresponds to its value in maintaining line and surface; that crushed trap rock is the best and that dirt is the poorest, the scale extending downward from crushed trap rock through limestone, slag, gravel, cinders and chats to dirt. The committee found no point in providing extra rail anchors at critical locations if the ballast will not transmit the stresses properly to the subgrade. For this reason it suggested that stone ballast be applied through and approaching remote control switches on branches that are otherwise ballasted with cinders or gravel.

The committee concluded that since proper anchorage of the rail is essential to safe track and economical track maintenance, and since no exact rules can be laid down for the number of anchors to be applied to any particular section of track, every track supervisor and roadmaster should study conditions on their territories to insure that they obtain adequate anchorage of the track structure without installing an excess number of anchors. It also recommended that these officers acquaint their foremen with the factors affecting track anchorage and that they emphasize to them the savings to be realized through adequate anchorage, properly maintained.

Discussion

The discussion of this report centered largely around the phenomenon presented by the creeping of rails in opposite directions. Numerous instances of this difficulty were related, but there was little agreement regarding the underlying cause of the trouble, although several theories were offered. One of these is that unequal allowance for expansion in the rails causes irregular creepage, while another attributes the difficulty to the counterbalancing on locomotives. A third explanation offered, applicable to curves, is that wheel-slippage causes the trouble.

High-Speed Trains and Track Maintenance

By W. H. Hillis*

As the result of the change in the transportation set-up of the country, the railways have had to increase the speed of their passenger trains to between 90 and 100 miles per hour, and of their freight trains to between 60 and 65 miles per hour. Such speeds were unknown even as recently as 8 to 10 years ago, with the exception perhaps of test runs which had been made at various times, during which such speeds were attained for short distances only. The demand for increased speeds today has placed increased responsibility on you roadmasters to maintain a track structure over which trains can be operated at such speeds safely, comfortably and efficiently. The question which confronts the maintenance man is how this can best be accomplished and how the work can be done most efficiently and economically.

There are many necessary factors in proper track maintenance, of which you are aware. One of the most

* Engineer Maintenance of Way, Chicago, Rock Island & Pacific, Chicago.

essential items to properly maintained track is adequate drainage. It is generally conceded that if moisture is permitted to accumulate, it results in soft roadbed conditions. The track structure cannot be supported properly where conditions of this kind exist. In this connection, it is important that side ditches be cleaned frequently to permit the quick run-off of water. If this is not done, water will accumulate in the ballast where it will cause soft spots and, in some cases, penetrate through the ballast and out onto the fills where it is likely to cause slides. It is also important that adequate drainage be provided around road crossings, particularly in the northern part of the country, to prevent heaving during the winter months.

Essential to good track maintenance, of course, are good ballast, ties and rail. Research and tests have been conducted for many years to permit the development of the most effective and economical materials for use in track construction and maintenance. These have resulted in treated ties; the normalizing, slow-cooling and heat treating of rail; double-shoulder tie plates, etc. The changing of worn angle bars, rail-end welding and rail-end hardening, the proper tightening of bolts, etc., are also important.

Tie renewals should be made during the early spring months, and completed by June 1 if practicable, except where surfacing work is programmed, in which case the ties should be renewed in connection with the surfacing. Ties can be renewed during the early spring months more economically and with less disturbance of the track structure than later in the season. Furthermore, the renewal of ties at this time stabilizes the track structure at a period when the track is more or less unsettled. Immediately behind renewals, the track should be smoothed up to correct any irregularities which may develop.

Anchorage of the rail is equally essential to maintaining proper track conditions and is a problem to which you must give considerable study. Special consideration should be given to anchoring track approaching bridges, turnouts and interlocking plants. Track must be anchored properly to maintain good alinement. If creepage occurs, it will result in poor line and gage, and, if permitted to continue, will cause general disturbance of the roadbed.

Most heavy maintenance work can be accomplished best by specialized gangs under competent supervision. The use of specialized gangs, especially for surfacing and laying rail, is advantageous in reducing the number of slow orders, which, of necessity, are ordinarily required during the heavy maintenance season. Slow orders should be reduced to a minimum and should be spaced, so far as possible, to permit uniform speed of operation between them.

Maintenance gangs should be mechanized so far as possible to permit the handling of work efficiently and economically. Properly trained supervision will permit carrying out work in line with standard practice or standard plans. Such gangs should be fully equipped with those up-to-date tools which are particularly adaptable to producing work with a high degree of efficiency and good workmanship. Motor cars and trailers are of importance, and should be maintained in a condition to expedite the movement of gangs to and from work.

The training of men for the proper supervision of specialized gangs is of the utmost importance. The roadmaster should give this close attention to see that there is a proper understanding of all duties and responsibilities. The foremen in charge of such gangs should be fully impressed with the importance of accuracy and high-class work in connection with the realining of the spirals of curves, and the maintenance of proper super-

elevation throughout entire curves. The P. S. and P. C. of all curves should be identified by permanent markers and the changes in elevation on the spiral should be marked or painted on the rail where they will be readily available to the foreman when checking the elevation on the spiral and curve. The work of specialized gangs should be followed up by section forces to permit correcting irregularities in cross level, gage or line which might develop. The importance of this should not be overlooked, as there are usually numerous spots which do not develop until several days after the major work has been completed.

One of the most important duties of a roadmaster is to educate thoroughly the men under his jurisdiction, because with foremen untrained in the principles of good mechanics, it is practically impossible to maintain a railroad which is suitable for high-speed operation. To best accomplish this, he must canvass his forces carefully, taking into account the ability and merit of each employee to permit the selection of those men who are outstanding and who have capacity for further advancement. These same considerations apply to the selection of section men, and should be thoroughly understood by section foremen. Instead of picking up anyone who happens to come along, they should attempt to get men with outstanding ability, with the view to having good material available for training and promotion. I cannot impress upon you too strongly the importance of building up a strong organization. One of the principal obstacles with which we are confronted today is that of securing capable men in the maintenance of way department. I am satisfied that if this obstacle can be overcome, we will continue to maintain our tracks suitable for the operation of high-speed trains with safety and comfort.

As stated before, we are today operating trains at speeds of 90 to 100 miles per hour. In my opinion, within the next ten years these speeds will be increased to 115 to 125 miles per hour on tangents with safety, with appropriate restrictions on curves. This can be accomplished through the development of steam and Diesel locomotives which are designed and constructed especially for high speeds, and through continued refinements in track maintenance. I am satisfied that you men, who have the responsibility for track maintenance, have been doing your work successfully, and that when still higher speeds are obtained, you will meet your part of the obligation.

Specialized Versus Section Gangs

The assumption that large specialized gangs are accepted as the most economical, practical and efficient means of accomplishing any considerable program of relaying rail or ballasting was the premise on which a committee, headed by J. B. Kelly, general roadmaster, Minneapolis, St. Paul & Sault Ste. Marie, based its report on the subject, Specialized Versus Section Gangs. Consequently, said the committee, there is no occasion for much discussion of those larger gangs which fully utilize such labor-saving devices as heavy-duty motor cars, rail-laying cranes, tie tampers, tie adzers, power spike pullers, spike drivers and bolt tighteners.

Also, continued the committee, specialized gangs are approved as satisfactory for such work as sawing rails, welding joints, frogs and switch points in track, surfacing track to give it a light lift, making tie renewals, respacing ties, clearing right-of-way and small rail-relaying jobs. When carried out by such gangs, tasks of this nature may be performed economically with the aid of power tools,

whereas such equipment could not be justified for section gangs because it would be used only intermittently and to a limited extent, and consequently would offer little advantage over former hand methods. One of the tasks that can be performed profitably by specialized gangs, the committee said, is the distribution and picking up of relay material, and it contended that the practice of bunching section gangs for the purpose of doing work of this character should be discontinued. It also contended that, since specially trained men are necessary for the handling of such equipment as ballast cleaning machines, track mowers and weed burners, the most desirable practice is to maintain the same operator on a given machine throughout the season rather than to change operators as each machine passes from section to section.

A portion of the report was devoted to a resumé of the progress that has been made on various roads in eliminating section crews and substituting therefor specialized gangs. Among the roads mentioned was the Chicago, Milwaukee, St. Paul & Pacific which, in 1932, reduced the size of its section gangs to one foreman and a laborer for each ten miles of main track, and introduced specialized gangs. The Chicago, Burlington & Quincy retained small section gangs of 3 or 4 men, but employs 15-man floating gangs to handle ordinary maintenance. On the Missouri Pacific Lines in Louisiana and Texas the number of section gangs was reduced from 345 in 1928 to 213 at present, while the number of floating gangs was increased from 12 to 19.

While the reduction in the number and size of section gangs has been offset by the introduction of specialized gangs on certain roads, the committee pointed out that in most cases the reduction was made for financial reasons. Also, it asserted that "specialized maintenance forces should by no means be given any more credit for effecting economical upkeep than is due them," and cautioned against the tendency to give specialized gangs credit for accomplishing a result that is rightly the natural outcome of a better track structure, older road-bed, better methods, and more production per man by all forces.

The section gang, according to the committee, has its

function and, within its sphere, is necessary. However, it said that to permit such gangs to function effectively they must be relieved of the necessity for making daily inspections and of devoting time to such "trivial duties" as caring for switch lamps. The section gang, it contended, should be maintained for handling emergencies and for guarding the operations of trains.

In closing its report, the committee offered the following conclusions:

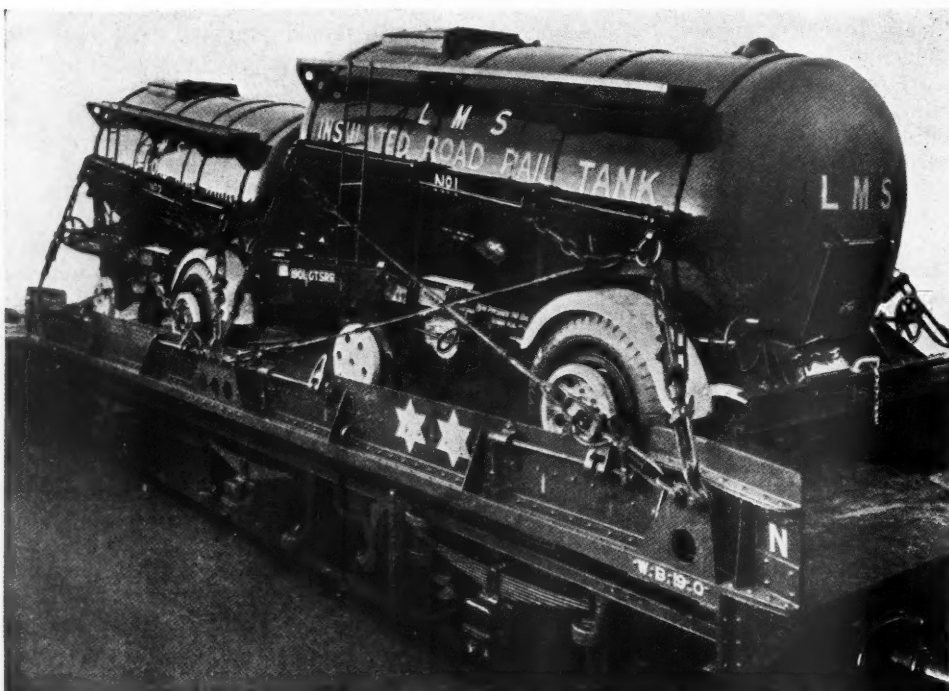
"That any appreciable mileage of rail or ballast should be handled with large specialized extra gangs of about 135 men, fully supervised and equipped with labor-saving machinery.

"That at least one specialized maintenance gang of 15 to 25 men may be engaged profitably on each maintenance district and should be equipped with machinery and special tools for promoting the work in hand. The major items of machinery should be kept in transfer from gang to gang on the division, depending upon the working schedules of the gangs, so that these units will be kept in constant service during the work season.

"That regular section gangs be maintained, and consist of at least a foreman and three men during the open working season, and that provision be made to employ them in a good share of regular section maintenance work—the mileage per section to be equated to the men allowed. Such gangs should be released from regular daily track inspection by an arrangement of territorial inspection to include several sections, this inspection to be accomplished by a suitable foreman and a man of wide track experience, employing a motor car designed particularly for the purpose."

The discussion turned to the relative efficiency of section and specialized gangs for ordinary maintenance operations, other than large operations such as laying rail, ballasting, etc., the general opinion being that where rail-bound equipment is necessary there will be no economy in the use of such equipment unless the work is of such a character that a large number of men can be employed, the reason for this being the recent decisions of the Railroad Adjustment Boards requiring the placing of engine-men and trainmen on equipment that cannot be removed readily from the track.

* * * *



Co-Ordinated Rail-Highway Transportation of Liquids Has Become Big Business on the London, Midland & Scottish of England

Charles E. Denney to Head Northern Pacific

Entered railroad service as assistant signal engineer of the Lake Shore & Michigan Southern in 1905. Has headed Erie for 10 years



Charles E. Denney

CHARLES E. DENNEY, president and trustee of the Erie, was elected president and a director of the Northern Pacific at a meeting of its directors at New York on September 28.

In acting so promptly in selecting a successor for Charles Donnelly, who died on September 4, the directors chose a man who is familiar with all phases of railway management. His outstanding characteristic is his ability to master the details of operation and to know and understand at all times the developments on his railroad, even in remote places. Another of his major qualities, and one which is partly a product of his experience as assistant general sales manager of the Union Switch & Signal Company, and partly due to the fact that he is by nature a good salesman, anyway, is his interest in shippers' problems. Throughout his presidency of the Erie, from 1929 to date, he maintained an unusually close contact with shippers and seldom failed to attend their meetings. Through this co-operation, as well as because of his efforts to improve the handling of fresh fruit and vegetable traffic, he was able to secure a large amount of business for the Erie.

During Mr. Denney's presidency the Erie earned at least 79 per cent of its fixed charges in each year excepting 1938, and came through the 1929-34 period with less damage to its earnings than many roads in its territory. This was accomplished by reductions in operating expenses in conformity with decreasing operating revenues, for while operating revenues declined from \$129,230,437 in 1929 to a low of \$72,086,316 in 1933, operating expenses were cut from \$97,630,916 to \$51,612,532. At the same time, Mr. Denney is a strong advocate of adequate maintenance, and the condition of the Erie today reflects his policy of keeping up the property when funds are available.

He takes over the management of a road that is in good physical and financial condition. The funded debt of the Northern Pacific is \$317,104,500, or only 56 per cent of its total capitalization. The company serviced its debt throughout the depression without difficulty, and

at present has no important near-term bond maturities or R. F. C. loans. Its traffic is well diversified, 25 per cent of its freight revenue coming from agricultural products, 2 per cent from animal products, 25 per cent from mines, 27 per cent from forest products and 21 per cent from manufactures and miscellaneous products.

Mr. Denney was born in Washington, D. C., on October 18, 1879, and received his education at the Pennsylvania State College. After six years with the Union Switch & Signal Company he entered railway service on May 16, 1905, as assistant signal engineer of the Lake Shore & Michigan Southern (now a part of the New York Central) and from May, 1906, to September, 1913, he was signal engineer of that road, his jurisdiction being extended on May 16, 1912, to include the Lake Erie & Western. From 1913 until August, 1914, he was special engineer to the vice-president of the New York Central Lines, with headquarters at Chicago. He was then appointed assistant general sales manager of the Union Switch & Signal Company and prior to November, 1916, was successively assistant general manager and assistant to the president of this company. On the latter day, he was appointed assistant to the president of the Nickel Plate. He subsequently became assistant general manager and assistant federal manager, and on March 1, 1920, was elected vice-president and general manager. In November, 1927, he became vice-president of the Erie in charge of operation, which position he retained until his elevation to the presidency on May 24, 1929.

Mr. Denney has always participated in railway association activities. When in signaling work he was active in the Railway Signal Association, now the Signal Section of the Association of American Railroads, which organization he served as vice-president in 1909-10 and as president in 1911. From 1927 to 1935 he was chairman of Division 1, Operating, of the American Railway Association, and from 1935 to date has served as a director of the Association of American Railroads.

A. A. R. View of R. R. Capacity*

Efficiency much greater than in 1918 and more co-operation is expected from shippers and U. S.—Much equipment ordered

By M. J. Gormley

Executive Assistant, A. A. R.

A STUDY of the capacity of the railroads today indicates there is no basis for fair comparison with the performance of 1918, due to the very great increase in efficiency in railroad operation since that time, and, particularly, since 1923.

A survey of the situation early in 1923 indicated that the railroads would be called upon to handle the largest traffic in their history during that year. To handle satisfactorily the traffic the railroad executives, at a meeting in New York on April 5, 1923, jointly adopted a "Program of the Railroads to Provide Adequate Transportation Service in 1923."

This program, which was adopted in anticipation of a heavy increase in business, included large expenditures for equipment and other physical improvements to property which resulted in new high levels of practically all phases of railroad operation. The program was fully carried out, and since that year car shortages and congestions have been eliminated.

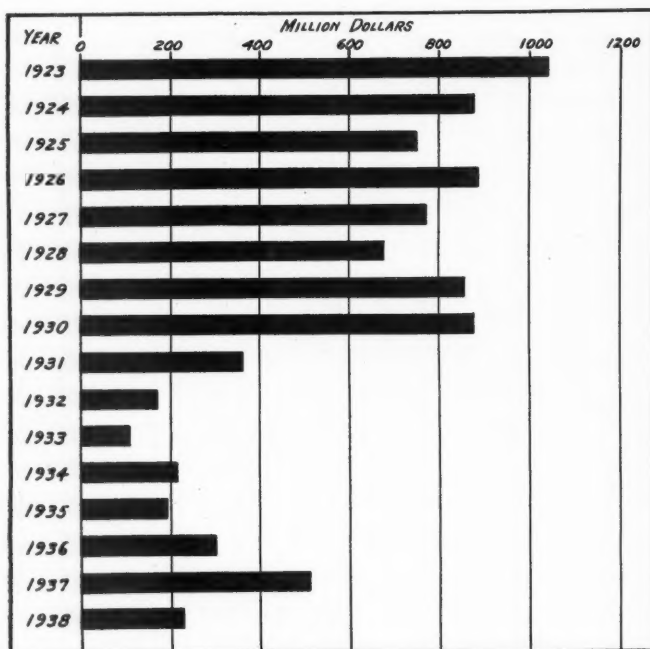


Chart 1—Gross Capital Expenditures—Class I Railways

In order more clearly to present the important changes in equipment, transportation conditions and performance, a series of charts is presented. Chart No. 1 attached shows the capital expenditures of the railways for the period 1923 to 1938, inclusive. This chart shows that during the years 1923 to 1930, capital expenditures

* An address delivered before the Atlantic States Shippers' Advisory Board, Atlantic City, N. J., October 5.

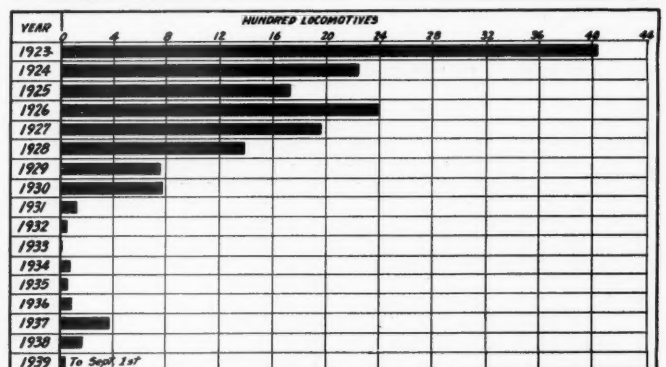
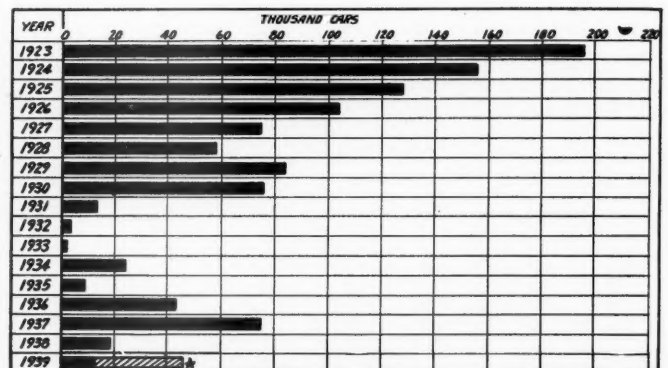


Chart 2—Above, New Freight Cars Put in Service—Below, New Steam Locomotives Put in Service

ranged between a high of \$1,059,100,000 in 1923 and a low of \$676,700,000 in 1928, and averaged \$842,700,000 per year for the eight year period as a whole. In the succeeding eight year period, 1931 to 1938, expenditures ranged between a high of \$509,800,000 in 1937 and a low of \$103,900,000 in 1933, and averaged \$258,700,000 for this latter period.

Chart No. 2 shows the number of new and completely rebuilt steam locomotives and freight cars put in service 1923 to 1938, inclusive. These figures do not include the number of locomotives and cars modernized since 1925, so that the record is incomplete to that extent. Chart No. 3 shows freight car and steam locomotive ownership as of September of 1918 and each year 1923 to 1939. It shows a decrease in ownership since the high point of 713,426 freight cars and 23,373 steam locomotives.

Chart 3-A shows that car repairs are geared to traffic demands. During the eight year period starting with 1923, the percentage of cars awaiting repairs never exceeded 9.6 per cent and went as low as 5.4 per cent. Since 1932 it has ranged between 15.6 per cent and 10.8 per cent. This figure can and will be reduced to the 1923-1930 level if cars are needed for increased business in prospect.

It is significant of the relationship of car buying to increased traffic to note that in 1937, with increasing traffic 75,058 new cars were added in that year. Chart No. 4 shows that there has been an increase in average tractive effort of locomotives of 43.3 per cent since 1918 and an average increased capacity per car of 19.5 per cent, or 8.11 tons per car. A very important factor is that over 35,000 locomotives and over one and a half million freight cars have been destroyed as obsolete since 1923.

Equipment Age Held No Measure of Fitness

It should be kept in mind that the age of locomotives or cars is not now, if ever, a criterion to follow as to the fitness of equipment for service. A modernized car or locomotive is just as serviceable as new equipment. The degree of maintenance through the years of life of the equipment must be taken into consideration in judging the present fitness for service.

Chart No. 5 shows the cars of revenue freight loaded during 1918 and 1923 to 1938. This shows that in each of the eight consecutive years since 1922 the railroads have handled traffic greatly in excess of that handled during the war period, and this peak volume of traffic

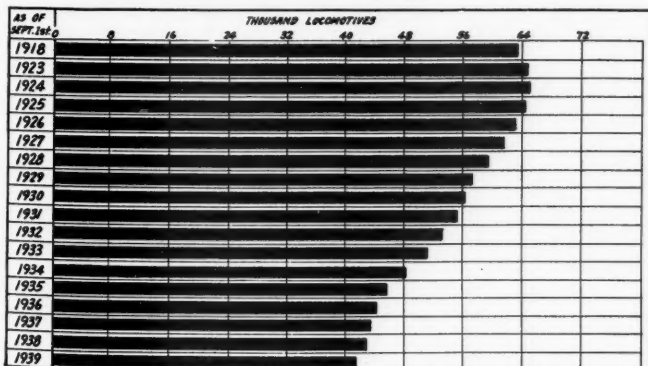
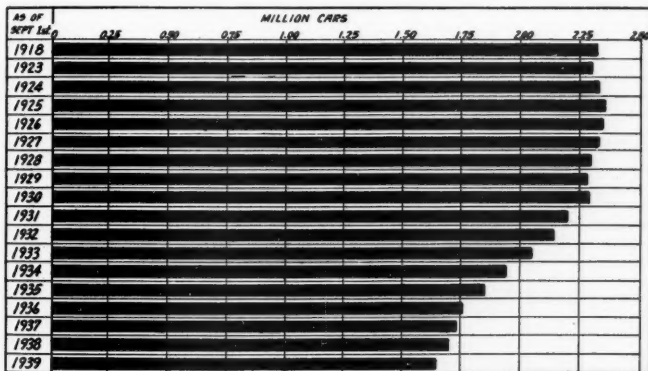


Chart 3—Above, Freight Car Ownership—Below, Locomotive Ownership

was handled without car shortages or congestion. It is also interesting to note that in each of these eight years the loadings of 1918 were exceeded by between a million and a quarter to approximately eight and one-quarter million cars per year.

Chart No. 6 shows average minimum and maximum surplus cars for each of the years 1923 to 1939. During those years there was a minimum average surplus of 123,776 cars and a maximum average surplus of 426,221 cars, indicating that there was a reserve capacity even during those years of peak traffic movement. In 1929, the last year of heaviest loading, over 52,000,000 cars were loaded, but minimum surplus during the year was

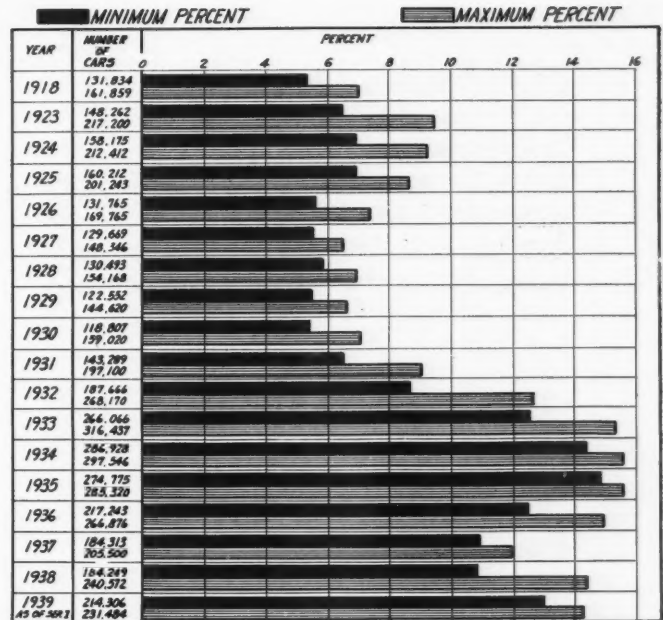


Chart 3A—Freight Cars Awaiting Repairs

107,301 cars. The maximum surplus during the same year was 447,141 cars.

Increased efficiency in operation, which is the vital point in determining rail capacity, is clearly shown in Charts Nos. 7, 8, 9 and 10. Chart No. 7 shows an increase in freight train speed of 61.2 per cent between 1920 and 1938. Chart No. 8 is a measure of the amount of work done by the railroads in a given period of time. It shows that gross ton miles per freight train hour increased 109 per cent in 1938 over 1920.

Chart No. 9 shows car miles per freight car day. This was 24.6 in 1918 and reached a high of 32.9 in 1937.

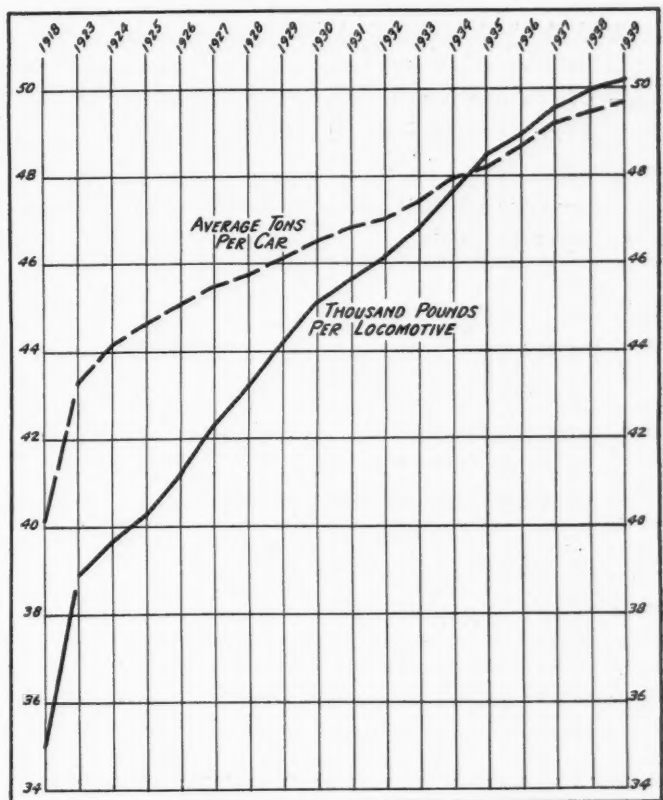


Chart 4—Average Car Capacity and Tractive Effort of Locomotives

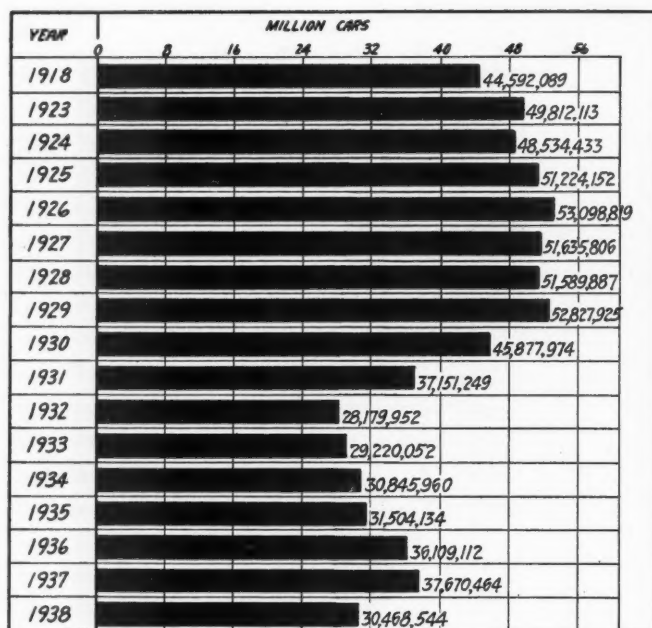


Chart 5—Cars of Revenue Freight Loaded—52 Weeks

This figure includes all cars, whether en route, awaiting repairs, surplus, or in the hands of shippers for loading or unloading. It is estimated that an increase in movement of one mile per car per day has the effect of increasing the existing car supply by 70,000 cars.

Chart No. 10 shows the average load per car of carload traffic originated, which increased from a low of approximately 34 tons per car in 1924 to a high of 36.7 tons in 1937. Generally speaking, tons per car of carload traffic drops off slightly when total loadings decrease. It is estimated that if the 1937 carload traffic had been handled with the tons per car of 1924, it would have required 90,000 more cars to have moved the same tonnage.

Chart No. 11 shows the cars of revenue freight loaded—weekly average by months—1918 and various years since that time. This shows a wide fluctuation in the traffic from one season to another and from one year to another. That fluctuation from one season to another and from one year to another without a doubt is greater than the total war load was at any time. Chart No. 12 is a summary of various comparisons with 1918. It is interesting to note from this chart that with the car ownership in 1929, 60,000 less than in 1918, and loco-

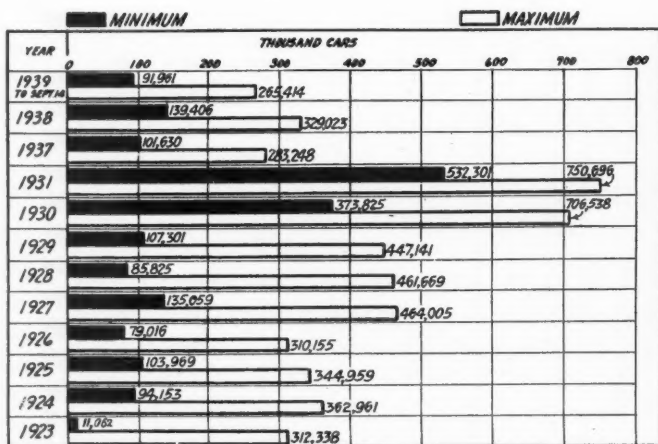


Chart 6—Freight Car Surplus Class I Railways of United States (Serviceable Equipment not Including Cars in or Awaiting Shop)

motive ownership 5,600 less, nevertheless there were loaded in 1929, 8,236,000 cars more than were loaded in 1918. The figures of gross ton miles per freight train hour for 1918 are not available but the chart shows a great increase in the average since 1920.

A very important factor today, not in existence until 1923, is the thirteen shippers advisory boards, each composed of a large number of shippers and receivers, divided into committees representative of various commodities. They work closely with the District Manager of the Car Service Division of the Association of American Railroads in each of the districts, and provide the railroads with estimates of probable car requirements three months in advance. They also co-operate with the railroads and the Car Service Division in improving car efficiency by more prompt loading and unloading, particularly in times of rapidly increasing business. Their work has been most effective, and in times of stress it is invaluable.

Counting on Shippers' Co-operation

The railroads and the Car Service Division well know that the co-operative spirit through the Advisory Boards will bring about the elimination of waste in the use of equipment, by loading and unloading promptly, by not

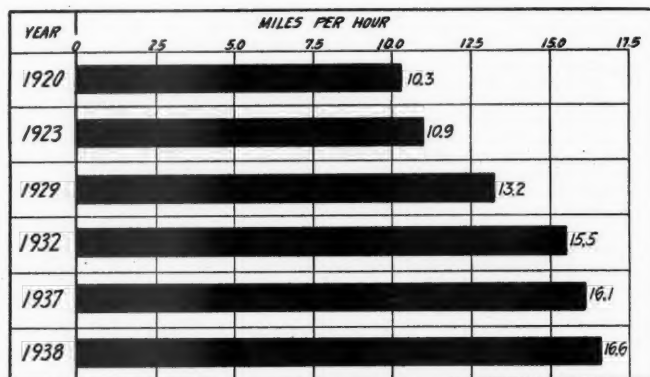


Chart 7—Freight Train Speed (Miles Per Freight Train Hour) Per Cent Increase 1938 over 1920 Equals 61.2 Per Cent

ordering more cars than are actually required, by loading in cars the maximum tonnage where such action is practicable. All of these efforts add greatly to the railroad capacity.

The entire transportation machine is operated by a human agency usually called management and men. The railroads have a great body of trained and skilled workmen who know their business and can be relied upon to do their full share in any case of emergency. The capacity of a human individual under stress of circumstances can never be measured by the statistician with his slide rule and decimal point. It is, however, an important factor. Increased demands for transportation involve no great problem to the railroads providing equipment is used for transportation alone and not for storage purposes. In other words the tying up of equipment by loading cars that can not be unloaded reduces the capacity of the machine to the extent that such cars are tied up. Furthermore, it is probably correct to assume that demands by the government for transportation in case of war would be more equally distributed throughout the year and thereby utilize a great many of the cars shown as surplus on Chart No. 6.

The records show that there were tied up under load at one time in 1918 over 200,000 cars for the government,

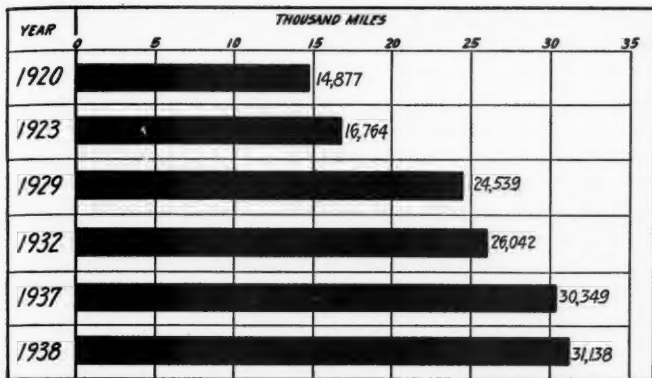


Chart 8—Gross Ton Miles Per Freight Train Hour (Per Cent Increase 1938 over 1920 Equals 109.3 Per Cent)

for industry and for export that could not be moved by reason of the receiver being unable to unload. Generally speaking, these 200,000 cars under present efficiency of operation would be sufficient to load not less than 100,000 cars per week. The records show that there was collected in demurrage for cars delayed beyond the 48-hour free time for loading or unloading for the year 1918, \$37,566,295, or an average of 84 cents per car for each car loaded. In 1929, when the carloadings exceeded 1918 by over eight million cars, there was collected 36 cents per car, a decrease of 57 per cent. The demurrage collected per car loaded has gradually dropped since that time. In 1938 the demurrage collected per car was 17 cents, or 80 per cent under 1918 and 52½ per cent under 1929.

Cars Not Meant to Be Warehouses

It should be remembered that from a transportation standpoint there is no necessity for having the anchors arrive before the ship's keel is laid; there is no necessity for having the piling arrive for the building of shipyards before the plans are completed; there is no necessity for any industry having a fear that they may not get transportation when they need it and ordering materials and supplies beyond their ability to unload when received,

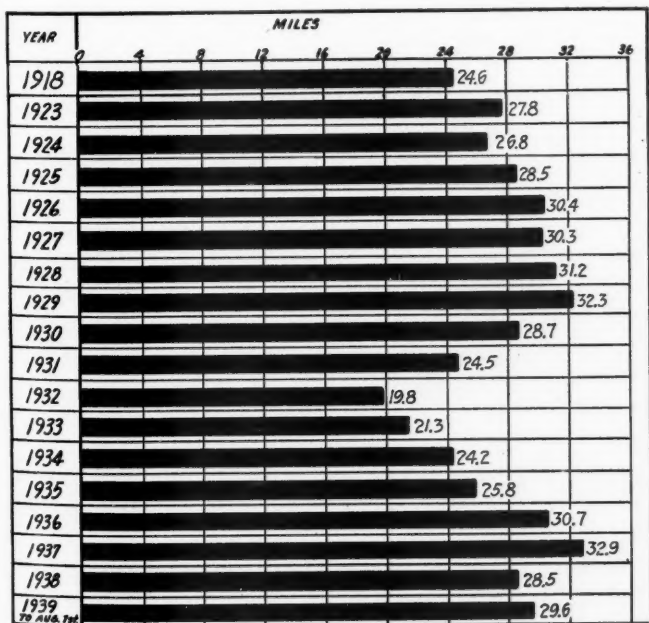


Chart 9—Car Miles Per Freight Car Day

thereby using cars for shortage purposes and reducing transportation capacity.

Under the operation of the present embargo and permit system of the railroads, through the Association of American Railroads, traffic, other than government freight, will be controlled by this system to prevent the possibility of any congestion of traffic in the interest of the shippers as well as the railroads. The plans of the War and Navy Departments, co-ordinated through the Army and Navy Munitions Board, provide that government freight must not be loaded on cars until it is known that it can be unloaded promptly at destination. The government, if found necessary, can supplement their instructions by arranging through the Association of American Railroads for issuance of embargoes and only permitting cars to be loaded when they can be unloaded promptly at destination. This will prevent the main difficulty ex-

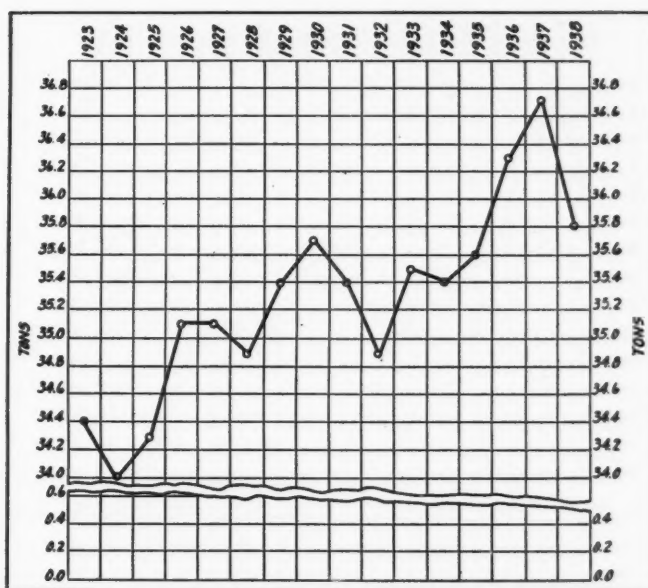


Chart 10—Average Load Per Car Originated—Carload Traffic

perienced in 1917 and 1918 when cars were loaded without any provision for insuring their prompt unloading.

Industrial Traffic Managers, Not U. S., Should Route Shipments

A great many of the difficulties in transportation in time of war can be traced to the fact that the war demands are greatly magnified by all interested, not realizing that the railroads are always, as a practical matter, on a war basis or can be made so to meet the demands of increased traffic, as has been demonstrated many times since the last war. Also considerable difficulty in transportation in time of war can be traced to attempts to change normal shipping operations, that is, by taking the handling of routing away from the industries themselves. Traffic managers of industries are thoroughly familiar with tariffs, routing and conditions of the route, equipment supply and everything of that kind. No matter from what industry the government may be buying it will find that that industry has a very competent traffic organization and without doubt it will greatly facilitate the handling of traffic if full use were made of such traffic managers and their organization. Cars for shipments from any industry should not be ordered by the buyer—the government—but should be ordered in the same way that ordinary commercial traffic is handled,

that is, by the traffic manager in charge of the industry ordering the equipment, arranging the routing, etc.

It can be said, of course, that such an arrangement does not provide for proper control and that the aim of the industry would be the same as it was in the last war—to get the material on cars and ship regardless of the

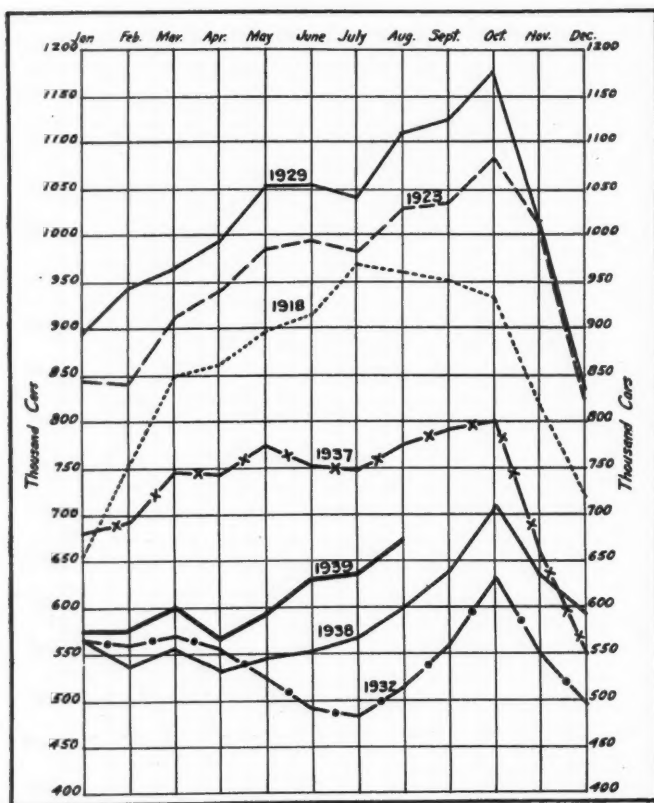


Chart 11—Cars of Revenue Freight Loaded—Weekly Average

ability of the government to receive and unload promptly, thereby using the cars for storage purposes and causing congestions. Under the plans already mentioned of the Army and Navy Munitions Board they specify that cars must not be loaded until it is known that they can be unloaded at destination. It is assumed under such arrangement that when an order is placed for materials the order will specify either a definite date before which it can not be shipped or a definite requirement that it will not be shipped until further notice is received from the officers in charge at points of export, depots, training cantonments, etc., that the material can be disposed of promptly on arrival.

Don't Ship Until Consignee Is Ready to Unload

It might again be said that such an arrangement as this does not provide for the iron-clad control that should be provided to avoid the possibility of congestion, and that definite and complete steps that would provide effective control should be adopted at the outset. This could be done along the following lines when an order is placed by the government:

Assuming that instructions were issued for the construction of a large cantonment and that the material therefor was immediately ordered, the order for the material should specify—"this material is not to be loaded on cars until permit to do so is received from construction Quartermaster at". To make sure that the instructions would be carried out, the construc-

tion Quartermaster at point of cantonment would direct the representative of the Association of American Railroads stationed at such cantonment to issue an embargo through the Association's embargo system against the movement of the traffic except under permit and a permit only to be issued when the cantonment Quartermaster requested the A. A. R. representative to do so. It is assumed that a request for permit will not be made until the Quartermaster is satisfied that they are ready for the material and can unload it promptly upon arrival.

The increased speed of movement and increase in general efficiency in every direction from year to year, as is indicated by the various charts, is the reason why a greatly increased traffic can now be promptly and satisfactorily handled with a large decrease in units of equipment compared with previous years. Generally speaking, the full benefits of capital expenditures for increased efficiency and economy in operation are not obtained until there is a corresponding decrease in the units of equipment required to handle the same or larger traffic.

At a meeting of the member roads of the Association of American Railroads, held in Washington, September 19, consideration was given to transportation requirements and unanimous action was taken, similar to that of April 5, 1923, heretofore referred to by the adoption of the following resolution:

"Resolved, That all roads take immediate steps to place their motive power and cars in shape to handle any possible increase in traffic."

New freight cars placed in service or ordered by the railroads during 1939, according to plans announced at this same meeting, it was indicated would exceed 46,000.

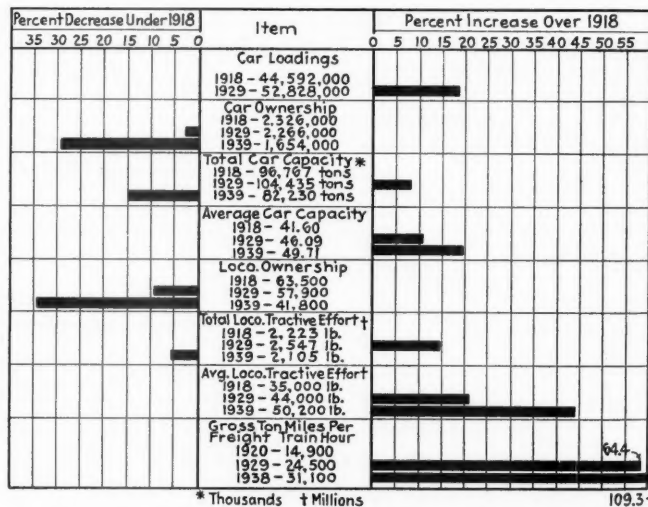


Chart 12—Traffic and Equipment

Reports are not received by the Car Service Division of cars ordered until the orders have actually been placed. A number of lines were not heard from at the meeting but I believe it is safe to assume* that there will be ordered or placed in service new this year not less than 60,000 cars.

Ready to Handle 50 Per Cent More Business Than Several Months Ago

There need be no fear that the railroads will not be able to handle any anticipated increase in traffic. Some months ago an estimate was made that a minimum of 25 per cent more than the existing business could be handled with the cars and engines in the condition that they were

at that time. The facts are that for the week ending Saturday, September 23, they loaded 814,828 cars, which was approximately 36 per cent increase in traffic or 11 per cent over the estimate. In other words, they have already handled 11 per cent more than we anticipated they could handle. This merely indicates how conservative the estimate was. At the same time, it was estimated that if all the locomotives and cars awaiting repairs were put in condition for service, the railroads could then handle 50 per cent more than the existing business. Based upon what they have already done, there is no doubt that this estimate also is far too low.

U. P. Adds to High-Capacity Motive Power Fleet

(Continued from page 518)

There is no brake on the engine truck but provision has been made for future application. The drivers do not have clasp brakes but use extra long brake heads to which two brake shoes are attached. The trailing truck is equipped with clasp brakes. The air brakes are New York No. 8 ET with two 8½-in. cross compound compressors.

Partial List of Materials and Equipment on the Union Pacific 4-8-4 Type Passenger and Fast Freight Locomotives

Steel for boiler and roof sheets	(8)	Carnegie-Illinois Steel Corp., Pittsburgh, Pa.
Firebox steel	(7)	Lukens Steel Co., Coatesville, Pa.
Tubes and flues		Bethlehem Steel Co., Bethlehem, Pa.
Brick arch		Globe Steel Tubes Co., Milwaukee, Wis.
Flexible staybolts		American Arch Co., Inc., New York
Fusible plugs		Flannery Bolt Co., Bridgeville, Pa.
Smokebox—Thompson front end		Nathan Manufacturing Co., New York
Superheater		Locomotive Economizer Corp., New York
Throttle		The Superheater Company, New York
Injectors, right side		American Throttle Co., New York
Exhaust steam injector, left side		Nathan Manufacturing Co., New York
Injector check top		Wm. Sellers & Co., Inc., Philadelphia, Pa.
Washout plugs		Locomotive Equipment Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn.
Stoker		The Prime Manufacturing Co., Milwaukee, Wis.
Blow-off cock and sludge remover		Standard Stoker Co., Inc., New York
Fire doors		Wilson Engineering Corp., Chicago
Grates		Franklin Railway Supply Co., Inc., New York
Cab seats		Waugh Equipment Co., New York
Valves		Heywood-Wakefield Co., Gardner, Mass.
Valves, safety		Crane Co., Chicago
Headlight and classification lamps		Ashton Valve Co., Boston, Mass.
Headlight generator		Pyle-National Co., Chicago
Gages		Sunbeam Electric Mfg. Co., Evansville, Ind.
Sanders		Locomotive Equipment Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn.
Rough castings—cylinder bushings and piston-valve bushings; light-weight valves; Duplex sectional valve-packing rings; Duplex springs		Morris B. Brewster Company, Chicago
Pistons		Hunt-Spiller Manufacturing Corporation, Boston, Mass.
Piston-rod and valve-stem packing		Locomotive Finished Material Co., Atchison, Kan.
Cylinder cocks		Paxton-Mitchell Co., Omaha, Neb.
Valve motion—McGill needle bearings		The Prime Manufacturing Co., Milwaukee, Wis.
Eccentric rod bearings:		Pilliod Co., New York
Back end		SKF Industries, Philadelphia, Pa.
Front end, McGill		Pilliod Co., New York
Lubrication, grease		Alemite Div. Stewart-Warner Corp., Chicago
Lubricators	(10)	Nathan Manufacturing Co., New York
	(5)	Detroit Lubricator Co., Detroit, Mich.
Bed frame; Boxpok wheels		General Steel Castings Corp., Eddystone, Pa.
Wheels—engine and trailing truck	(10)	Carnegie-Illinois Steel Corp., Eddystone, Pa.
	(5)	Bethlehem Steel Co., Bethlehem, Pa.
Pilot		(5) Bethlehem Steel Co., Bethlehem, Pa.
Radial buffer		General Steel Castings Corp., Eddystone, Pa.
Reverse gear	(10 Type E)	Franklin Railway Supply Co., Inc., New York
Lateral cushioning device	(5)	American Locomotive Co., New York
Bearings—driving, engine, and trailer trucks	(10)	American Locomotive Co., New York
Air-brake equipment	(5)	The Timken Roller Bearing Company, Canton, Ohio
Tender:		SKF Industries, Philadelphia
Truck		New York Air Brake Co., New York
Bearings	(10)	General Steel Castings Corp., Eddystone, Pa.
Wheels	(5)	The Timken Roller Bearing Company, Canton, Ohio
	(10)	SKF Industries, Philadelphia, Pa.
	(5)	Carnegie-Illinois Steel Corp., Pittsburgh, Pa.
	(5)	Bethlehem Steel Co., Bethlehem, Pa.

New Books...

Handbook for Model Railroaders, by W. K. Walthers. 123 pages. 9 in. by 5¾ in. Published by the Modelmaker Corp., Wauwatosa, Wis. Bound in cloth, price \$1.50; bound in paper, \$1.00.

The principal clearing house of information for cellar-and-attic railroaders here presents the new and enlarged edition of a handbook first published in 1937. Serving principally as an introduction to the hobby which is attracting several thousand persons from all walks of life, it furnishes "must" reading for the man who is eying the "inner circle" with envy and as a handy reference for the veteran operator. Together with the cyclopedia published by the same house, it apparently has answers for every possible contingency ranging from how to get the main line around the coal-bin to why a switch won't switch.

Proceedings of the American Wood-Preservers' Association for 1939. 503 pages, 6 in. by 9 in. Illustrated. Bound in cloth. Published by the association, 1427 Eye street, N. W., Washington, D. C. Price, \$6.

Forty-one papers and committee reports, together with the discussions which followed their presentation, are included in this volume of the proceedings of the thirty-fifth annual convention of the association, which was held in Washington, D. C. in January. While a few of the papers and reports deal with technical matters relating particularly to the wood-preserving industry, many of them are of direct interest to railway men. These latter include reports on the fireproofing of timber; an international termite exposure test; car lumber; service records of ties, fence posts and poles; and on specifications for the treatment of ties, timber, lumber, piles, posts and poles.

Among the papers of special interest to railway men are those on the experience of the Norfolk & Western with treated timber, and what the Baltimore & Ohio has learned from the treatment of timber, other than cross and switch ties, but others containing much valuable information with respect to preservatives, treatments and uses of treated timber in related fields are those on the effect of sodium bichromate on the preservative value of zinc-chloride; the corrosion of metal fastenings in zinc-chloride treated wood after ten years; the field for treated timber in the construction of public buildings; the navy's experience with treated wood; and the place of treated timber in highway construction.

In addition to the foregoing, the volume includes a detailed report of the business sessions of the thirty-fifth convention; a list of all of the wood-preserving plants in the United States, Canada and Mexico; and the thirtieth consecutive annual report, for the year 1938, of the quantities of wood treated and preservatives used in the United States, prepared by R. K. Helphenstine, Jr., of the Forest Service, United States Department of Agriculture.

NEWS

S. E. Post Answers Truck Man's Complaint

Editor tells of personal experiences with trucks in reply to "hurt" champion

The current issue of the Commercial Car Journal (a monthly magazine for owners of motor truck fleets) contains a vigorous exchange of letters between George T. Hook, the journal's editor, and Wesley W. Stout, editor of the Saturday Evening Post. It appears that on August 19 the Post published an article entitled "Freight Trains on Our Highways" which, Mr. Hook claims, "in a good portion of its content is astoundingly unfair to the truck industry as a whole and particularly to that segment of the industry known as the for-hire field." The letter goes on to find fault with allegations and statistics of the Post article and closes with: "All in all the article is an amazing exhibition of inept editing by a reputable and powerful publication of which the truck industry certainly deserved better."

The Post editor replied to the effect that the critical letter has been forwarded to the author of the article for his comment. The rest of his letter follows: "Meanwhile, speaking for ourselves, the tone of your letter bores me. Because you know more about trucks than do we, I wonder why you should assume that we know nothing about them. I drive a good many thousand miles a year from the Atlantic to the Pacific, the Gulf to Canada and I see many instances of freight trains on the highways.

"I don't have to travel to see them, for that matter. I live twenty miles north of Philadelphia, close to Butler Pike, a road so unimportant that it does not bear a number. Five nights a week about 1 A. M. three heavy trucks and trailers loaded with cast iron or stove parts for a Hathboro factory toil up the hill below us in low. They have gained enough momentum to shift through second and third to high just as they pass our house. Apart from the noise, their weight and momentum shakes the house literally. Any one who gets to sleep before they pass is likely to be waked. This road was not built for such traffic and we resent it being put to such use, but we are powerless to protect ourselves.

"Both the railroads and the automobile-gasoline-tire-cement, etc., industries are our advertisers. For every dollar we get from the railroads, we get fifty or more

from the latter. We represent neither, however.

"If we represent any one, it is the public. The public has some legitimate grievances against truck abuses and the trucking industry deludes itself if it supposes that all criticism is railroad-planted propaganda."

Pennsylvania Garden Club Holds Successful Show

The 1,500-member Pennsylvania Railroad Garden Club reports that its annual fall flower show held in Philadelphia, Pa., September 15 and 16 covered approximately 18,000 sq. ft. of floor space and attracted several thousand visitors. Some 37 classes were open to employees of all railroads and the Railway Express Agency.

Saves Two in Two Weeks; Receives P. R. R. Medal

S. J. Younger, yard brakeman of the Pennsylvania at Philadelphia, Pa., on September 27 received the railroad's medal for heroic service, which is awarded to employees for bravery under circumstances of great danger above and beyond the requirements of duty. On February 10, the recipient saved a fellow employee at Frankford Junction yard from death beneath the wheels of a moving freight car and was himself struck. Exactly two weeks later he rescued from the top of a car a boy who, while trespassing on railroad property, fell from an overhead railroad bridge to the roof of the car and was nearly electrocuted by a power wire.

Railroad Y. M. C. A. Membership Drive

System and regional groups of Railroad Y. M. C. A. secretaries have been holding conferences to discuss their plans for the fall and winter season, and to perfect arrangements for the annual membership campaigns, most of which are scheduled for the latter part of this month. One of the high spots in the meeting of the Pennsylvania Railroad Y. M. C. A. Secretaries, September 29-30, was a banquet at the Pennsylvania Terminal in New York City at which the guest speaker was Governor A. Harry Moore, of the State of New Jersey. Governor Moore entered into the spirit of the occasion wholeheartedly and made a most inspiring address, challenging the secretaries and the Y. M. C. A. workers to make their lives and personalities more effective by striving toward higher ideals of service. Music was furnished by the Keystone Quartette.

How War Affects Britain's Railroads

Freight and troop movements bring passenger schedule cuts; slowed by black-outs

The European war has made necessary drastic curtailment of passenger train services in Great Britain, preliminary reports of which have appeared in *Railway Age*. Definite schedule curtailments, which will remain in effect until conditions change sufficiently to permit restoration of full-time services, were made effective September 11. The Railway Executive Committee [composed of six railroad officers who are to operate the British roads during the war crisis under the Ministry of Transport] on the following day issued the following official statement: "The railways have a very heavy freight and military traffic to deal with which is of an urgent and exceptional character. They have to carry on their night working, when freight service is mostly handled, under exceptionally difficult lighting conditions. It is essential for the welfare of the country that freight and military traffic should be punctually and efficiently handled. Subject to this the railway companies are doing and will do everything they can to give the public the best passenger service that is within their power. Each company is watching the situation from day to day and will put on such extra trains as working conditions permit. The railways have no desire to limit passenger travel but they are bound to give first place to traffic of an urgent national character."

The committee also issued on September 7 an announcement covering specific service curtailments. This was distributed by the Ministry of Information and appears in full in the current issue of the *Railway Gazette* (London). All dining car services are suspended and emergency arrangements are being made for box lunches to be sold at the more important stations. Sleeping-car service is severely curtailed. For the time being, information on passenger-train schedules and services are to be posted at railway stations which passengers are requested to consult for information rather than congest telephone lines. The reservation of seats and compartments is being discontinued. One-day round trip and excursion tickets are cancelled. Return trip tickets expiring at any

(Continued on page 538)

8 Months N. R. O. I. \$269,349,356

Earn 1.72 p. c. on investment;
Gross revenue 10 p. c. over
1938; expenses up 6 p. c.

Class I railroads of the United States, as announced briefly in last week's issue, for the first eight months of 1939 had a net railway operating income of \$269,349,356 which was at the annual rate of return of 1.72 per cent on their property in-

Class I roads in the Eastern district for the eight months had a net railway operating income of \$157,081,419 or 2.02 per cent; for the same period in 1938, their net was \$86,339,603 or 1.11 per cent; while in 1930 it was \$297,728,078 or 3.92 per cent. Gross in the Eastern district for the eight months totaled \$1,205,510,191 an increase of fourteen per cent compared with 1938, but a decrease of 32.6 per cent compared with 1930; operating expenses totaled \$890,954,032, an increase of 8.5 per cent above the same period in 1938, but a decrease of 33.3 per cent under the first eight months of 1930.

CLASS I RAILROADS—UNITED STATES

Month of August

	1939	1938	1930
Total operating revenues	\$344,399,562	\$315,335,418	\$460,973,773
Total operating expenses	247,621,627	229,572,952	323,571,474
Taxes	31,183,774	29,191,973	31,747,043
Net railway operating income.....	54,586,246	45,421,781	94,327,471
Operating ratio—per cent.....	71.90	72.80	70.19
Rate of return on property investment.....	2.01	1.67	3.33

Eight Months Ended August 31

Total operating revenues	\$2,480,961,970	\$2,250,992,184	\$3,572,873,894
Total operating expenses	1,890,327,881	1,783,333,872	2,701,718,583
Taxes	233,178,259	226,096,314	240,197,403
Net railway operating income.....	269,349,356	155,038,546	545,262,898
Operating ratio—per cent.....	76.19	79.22	75.62
Rate of return on property investment.....	1.72	0.99	3.45

vestment, according to reports filed by the carriers with the Bureau of Railway Economics of the Association of American Railroads. In the first eight months of 1938 their net railway operating income was \$155,038,546 or 0.99 per cent and in the first eight months of 1930, was \$545,262,898 or 3.45 per cent. The August net was \$54,586,246 or 2.01 per cent on investment compared with \$45,421,781 or 1.67 per cent in August, 1938 and \$94,327,471 or 3.33 per cent in August, 1930.

Gross operating revenues for the first eight months of 1939 totaled \$2,480,961,970 compared with \$2,250,992,184 for the same period in 1938, and \$3,572,873,894 for the same period in 1930, an increase of 10.2 per cent in 1939 above 1938, but 30.6 per cent below 1930. Operating expenses amounted to \$1,890,327,881 compared with \$1,783,333,872 for the same period in 1938, and \$2,701,718,583, for the same period in 1930—six per cent above the former, but thirty per cent below 1930.

Class I roads in the eight months paid \$233,178,259 in taxes, compared with \$226,096,314 in the same period in 1938, and \$240,197,403 in the same period in 1930. For August alone, the tax bill amounted to \$31,183,774, an increase of \$1,991,801 or 6.8 per cent above August, 1938. Twenty-three Class I roads failed to earn expenses and taxes in the first eight months, of which 8 were in the Eastern district, 5 in the Southern district, and 10 in the Western district.

Gross for August amounted to \$344,399,562 compared with \$315,335,418 in August, 1938, and \$460,973,773 in August, 1930; operating expenses totaled \$247,621,627 compared with \$229,572,952 in the same month in 1938, and \$323,571,474 in August, 1930.

Class I roads in the Eastern district for August had a net of \$29,432,774, compared with \$20,522,781 in August, 1938, and \$44,949,205 in August, 1930.

Class I roads in the Southern district for the eight months had a net of \$41,399,624 or 2.09 per cent; for the same period in 1938, it was \$29,839,363 or 1.52 per cent; and for the same period in 1930 it was \$54,190,288 or 2.56 per cent. Gross in the Southern district for the first eight months amounted to \$326,229,455, an increase of 7.6 per cent compared with the same period in 1938, but a decrease of 26 per cent under the same period in 1930; operating expenses totaled \$247,703,582, an increase of 4.6 per cent above the same period in 1938, but a decrease of 29.3 per cent under 1930.

Class I roads in the Southern district for August had a net of \$5,000,869, compared with \$5,309,105 in August, 1938, and \$5,820,065 in August, 1930.

Class I roads in the Western district for the eight months had a net of \$70,868,313 or 1.20 per cent. For the same period in 1938 these same roads had a net of \$38,859,580, or 0.66 per cent, and for the same period in 1930 they had a net of \$193,344,532 or 3.17 per cent. Gross in the Western district for the first eight months amounted to \$949,222,324, an increase of 6.6 per cent above the same period in 1938, but a decrease of 29.3 per cent below the same period in 1930; operating expenses totaled \$751,670,267, an increase of 3.6 per cent compared with the same period in 1938, but a decrease of 25.9 per cent under the same period in 1930.

For August alone the Class I roads in the Western district had a net of \$20,152,603 compared with \$19,589,895 in August, 1938, and \$43,558,201 in August, 1930.

I. C. C. Sees Big Fight in Gas Case

Struggle for gasoline traffic
by common and private carriers in cases just decided

Dealing with a situation wherein carriers by rail, by highway and by water are engaged in a competitive struggle, complicated by threats of private carriage and an element of market competition, the Interstate Commerce Commission, in a six-to-four decision, has disposed of six proceedings embracing the principal interstate rail and truck rates on petroleum and its products in the Mountain-Pacific Northwest. While rejecting the rates proposed by the carriers as lower than necessary the commission did so without prejudice to the establishment of a scale which would represent substantial reductions from present charges.

Among the dissenters was Commissioner Aitchison who thought that the carriers had justified rates lower than the majority would approve. He described the situation as one "in which the major oil companies in California, determined to block effective competition in the Inland Empire with Montana-produced petroleum products, are using the common carriers by rail and highway and the private water carriers as mere pawns in a deadly and determined commercial struggle"; and he fears that the net result of the approved adjustment "will be destructive to all of the carriers involved, except the California group of oil companies, which openly states its purpose to go up the (Columbia) river with their own boats, and upon the highways with their own trucks, cutting transportation costs so as to control the great volume of Inland Empire gasoline business." The "threatened supersession of the regular carriers by private operation," Commissioner Aitchison adds, "is virtually invited by this report." Other dissents came from Commissioners Miller and Splawn, while Commissioner Mahaffie joined in the former's expression. Separate concurring expressions were written by Commissioners Caskie and Alldredge. Commissioner Patterson did not participate.

The railroad aspect of the proceedings arose as a result of efforts of rail carriers serving north Pacific ports to publish rates from such ports to interior points which would meet the competition of water-truck routes utilizing the Columbia river to Umatilla, Ore., and Attalia, Wash., and the highways beyond. Meantime truckers hauling from the coast ports into the interior in competition with the rail and the river-truck routes were concerned lest the rail rates be made so low as to force the coast-to-interior truckers out of business; while a large trucking concern, content to forego any effort to compete with the river-truck route for the long haul from the Pacific ports, was proposing a reduced rate from Umatilla to interior points in order to stay the threatened resort to private trucking which would deprive it of participation in the river-truck traffic. Since all of this would tend to alter rate

relationships under which northern Montana refiners had been competing with California producers for the Inland Empire markets, the Great Northern proposed to reduce the rates on crude oil and refined products from points on its line in northern Montana to Spokane, Wash., and related points.

Much of the trouble, it appears, started after the completion of the Bonneville Locks and other recent improvements which have made the Columbia river navigable up to Attalia, about 227 miles by river east of Portland, Ore. On the Columbia and its tributaries, the commission notes, "the federal government has spent over \$83,000,000 . . . to promote commercial navigation and for other purposes, while local interests have contributed over \$8,000,000 additional." As a result Umatilla and Attalia have been developed by California refiners as distributing points, petroleum products are being hauled on the river from Portland to Umatilla for 7.5 cents per 100 lb.; and the refiners claim that private trucking can be performed between Umatilla and Attalia and Spokane for about 15 cents per 100 lb. Thus the railroads were informed that to hold the traffic moving from the north Pacific ports to the Spokane area they would have to publish a rate somewhere near the combination of the 7.5-cent river rate plus the 15-cent trucking cost—a rate to Spokane of "not over 25 cents and possibly as low as 22.5 cents, as compared with their present 41-cent rate." The railroads proposed a 25-cent rate, while the above-mentioned large trucking concern—Asbury Transportation Company—proposed a 17-cents-per-100-lb. rate from Umatilla to Spokane to meet the threat of private trucking at the estimated cost of 15 cents. The commission's action in disapproving both the railroads' and Asbury's proposals was without prejudice, respectively, to the establishment of a key rail rate of 28.5 cents per 100 lb. from Portland, Seattle and Tacoma to Spokane and a truck rate of 19 cents per 100 lb. from Umatilla to Spokane.

In arriving at this 28.5 cents rail rate the commission first decided that the river rate of 7.5 cents per 100 lb. from Portland to Umatilla "has not yet reached that degree of permanence and stability which would warrant us in recognizing it as controlling the river factor." Looking to "an indefinite future period," the report goes on, "it would be safer to here figure on a 9-cent port-to-port rate." To this "constructive" river rate of nine cents, the commission adds the approved 19 cents Umatilla-Spokane truck rate and one-half cent for incidental costs attending the river-truck movement to build up the approved rail rate of 28.5 cents per 100 lb. It puts the rates on a parity because "the value of the service is about the same regardless of which agency of transportation is used," the record being "convincing that the great bulk of the traffic will seek the lowest level of charge and that unless rail rates approaching the river-truck combinations are established, it will not be long before only emergency shipments . . . and products that sell in relatively small volume . . . will continue to move by rail or truck direct from the north-coast ports." Meanwhile

the Great Northern's proposal with respect to rates from northern Montana to Spokane ("based on market competition alone") is disposed of by a disapproval without prejudice to establishment of an adjustment related to the approved ports-to-the-interior basis.

In others of the proceedings disposed of the commission found not unlawful proposed reduced interstate rail rates on petroleum and its products in tank-car loads from Spokane to points in Washington; also it dismissed complaints alleging unreasonableness and unjust discrimination in connection with rail rates on petroleum products, including asphalt and road oil, in tank-car loads, from certain Montana and Wyoming points to destinations in Oregon, Washington and Idaho. Finally it discontinued its No. MC C-125 investigation ("instituted largely as a precautionary measure") of the principal truck rates on petroleum and its products in the Mountain-Pacific Northwest.

Summing up the commission concedes that the 25-cent rate proposed by the railroads from the ports to Spokane "would yield some margin over full costs," while the motor carriers "with a heavy volume of traffic" could make both ends meet on a rate of 17 cents from Umatilla and Attalia to Spokane and the water carriers "might be able to operate without loss" on a 7.5 cent rate from Portland to Umatilla and Attalia. In this connection the report goes on to say that "a somewhat lower level of minimum rates" than the approved 28.5 cent rail rate and 19 cent truck rate would have been authorized if the commission "were to assume that the shippers of petroleum products would use every means in their power to bring down their transportation costs to the lowest possible level, regardless of the effect upon the public carriers whose welfare is vital to the best interests of the country. . . ." Because it did not feel justified in assuming that the oil companies were as unpatriotic as all that the commission prescribed an adjustment which in its opinion "will promote a somewhat healthier degree of prosperity for all carriers concerned. . . ." It had previously observed that its power to prescribe minimum rates was given for the purpose of preventing destructive competition, adding that its duty in that connection is therefore "not done if we allow competitive rates to gravitate to the lowest possible level."

"Minimum rates," the report continues, "should be fixed, if it can be done, at levels which are consistent with some degree of carrier prosperity; and in so fixing them we ought to be able to count on the co-operation of the shippers, because reasonable prosperity for the carriers is in the final analysis to the advantage of those whom they serve."

In another part of the report reference is made to the Inland Empire Waterways Association's protest against the proposed reduction in the rail rates from the north-coast ports. This organization, which "desires all types of transportation to survive," urged that "there is not enough petroleum traffic on the river or in sight to justify the apprehension the railroads here show; that the proposed rates from the

north-coast ports are for the purpose of eliminating water transportation in its infancy . . . ; that they threaten the success not only of Columbia river navigation, but also of the Grand Coulee Dam and other federal projects. . . ."

In his separate concurring expression Commissioner Caskie emphasized his emphatic agreement with that phase of the decision which recognized the propriety of the Great Northern effort to relate the rates from northern Montana points to Spokane and other inland destinations to those from the North Pacific ports to the same destinations. Commissioner Alldredge would have preferred that the key rates from Portland and Seattle to Spokane be fixed at 31 cents, but he accepted the majority's approval of the 28.5 cent rate as being "more nearly correct" than the 25 cent rate proposed by the railroads. Commissioner Miller's dissent, in which Commissioner Mahaffie joined, expressed the view that the carriers had justified the rates under suspension. Commissioner Splawn found nothing in the record to show that the proposed tariffs were unlawful in any respect; nor anything in the majority report which shows "25 cents is not compensatory and that 28.5 cents is the minimum below which costs would not be met."

Pioneer Zephyr Collides with Freight Locomotive

The "Pioneer Zephyr" of the Chicago, Burlington & Quincy, while enroute from Kansas City, Mo., to Omaha, Neb., on October 2, encountered an open switch and collided with a freight locomotive which was taking water near Napier, Mo. The engineman of the Zephyr was killed and five other trainmen were injured. The accident occurred while the train was passing through the yards at Napier.

Foreign Field and Transportation to Be Discussed

A discussion of transportation in its relation to foreign trade will be held in the Hotel Commodore, New York, 3 to 5 p. m., October 10, in connection with the 26th annual convention of the National Foreign Trade Council being conducted October 9 to 11, inclusive. A number of specialists in various transportation fields will be on hand to participate.

B. & M. Establishes Four New Freight Trains

The Boston & Maine has inaugurated four new fast through freight trains, one in each direction between Boston, Mass., and Mechanicville, N. Y., and one in each direction between Portland, Me., and Mechanicville. On the former run the new westbound train is scheduled to leave Boston at 3:30 a. m. and arrive at Mechanicville at 2:30 p. m., while the eastbound train leaving Mechanicville at 3:30 arrives in Boston at 2:30 p. m. The westbound train on the latter run leaves Portland at 6 p. m. and arrives at Mechanicville at 8 p. m.; on the eastbound run the train leaves Mechanicville at 8:45 p. m. and arrives in Portland at 10 a. m. It is pointed out that establishment of these new trains

results in the new employment of eight train crews or approximately 40 men.

The road also reports substantially increased business in recent weeks. The largest number of freight cars moved eastward from the Mechanicville gateway in any one day since November 2, 1930, when, on September 24, the road handled 1,110 cars, including but three empties. Previous to this record the average recent movement per day has been between 500 and 800 cars. The road's Boston yard crews have been increased from 197 per week employed on August 24 to 239 employed the week of September 25. At Mechanicville 48 yard crews were employed the week of August 21; 59 crews were employed the week of September 25.

Fairless Placed on Harriman Award Committee

B. F. Fairless, president, United States Steel Corporation, who started his business career with the Wheeling & Lake Erie as civil engineer in 1913, has accepted membership on the committee of award of the E. H. Harriman medals for steam railroad safety sponsored by the American Museum of Safety, New York. He fills a vacancy left by the death of Charles M. Schwab. Other members of the committee are G. B. Cortelyou, chairman, former Secretary of the Treasury; F. D. Underwood, former president of the Erie; S. O. Dunn, editor of *Railway Age*; Frank McManamy, former Interstate Commerce Commissioner and L. R. Palmer, conservation engineer, Equitable Life Assurance Society, and secretary of the committee.

M. P. Booster Clubs Hold Annual Convention

The 56 booster clubs of the Missouri Pacific held their annual convention at St. Louis, Mo., on September 29. L. W. Baldwin, chief executive officer of the railroad, in addressing the group said that a solution of the railroad problem will be reached only when the public becomes fully conversant with the contributing factors. This solution, he continued, hinges on the hope that as a result of this understanding the public will demand enactment of legislation which will place the railroads on a fair and equitable basis with their competitors. He lauded the movement under which 28,000 employees of the road, representing every activity, have voluntarily become solicitors of traffic. The movement, he said, was organized 15 years ago and had been instrumental in not only attracting new business but in the improvement of employee morale and the creation of good will.

Creditors Sue Van Sweringen Realty Company

An assignee for creditors of the Vaness Company, former top holding company for the Van Sweringen rail and realty empire, sued the Terminal and Shaker Heights Realty Company at Cleveland, Ohio, on September 29, charging that the Midamerica Corporation was organized to the detriment of the Vaness Company. The Terminal and Shaker Heights Realty Company is successor to Midamerica, which

was formed on September 28, 1935, to buy the key assets of Vaness at a public auction sale in New York, after Vaness had defaulted on an \$18,250,000 loan from J. P. Morgan & Company, the suit charged. The assignee, Warren L. Morris of Cleveland, declared Vaness was 80 per cent controlled by the late O. P. and M. J. Van Sweringen, and that the brothers, "while occupying the position of trust with Vaness, induced George Ball and George A. Tomlinson to enter into an agreement with them to form Midamerica for the express purpose of bidding for and acquiring the stocks at public sale."

Tariffs of Forwarders

Following through on the decision embodied in its supplemental report in the case involving the status of Acme Fast Freight, Inc., the Interstate Commerce Commission has issued an order requiring the Universal Carloading & Distributing Company, National Carloading Corporation and other forwarding companies to show cause on or before October 23 why tariffs "naming what purport to be joint rates between the forwarding companies . . . and numerous motor carriers" should not be rejected and stricken from the commission's files.

In the supplemental report in the Acme case (reviewed in the *Railway Age* of August 12, page 262), the commission found that forwarders cannot lawfully enter joint-rate arrangements with motor carriers, but must pay the regularly-published tariff rates of the common carriers whose services they utilize. Hence the Acme tariffs were ordered stricken from the files; however, a new order postponing from October 10 until October 25 the effective date of this supplemental order was issued along with the above-mentioned show-cause order running against the other forwarders with tariffs on file.

Also, the commission has postponed from October 10 until November 10 the effective date of the order in I. & S. No. M-247 wherein it struck down tariffs whereby certain motor carriers in the Middle West sought to publish these arrangements with forwarders as "proportional" rates. The commission's decision in that case was also reviewed in the issue of August 12, page 266.

"All-Freight" Rates Between St. Louis and Kansas City

"All-freight" commodity rates on merchandise in carloads between East St. Louis, Ill., and St. Louis, Mo., on the one hand, and Kansas City, Mo., on the other, and between such points and certain other points in Missouri, have been found justified by the Interstate Commerce Commission, Division 4. Although published as "truck-compelled" rates, approval of the "all-freight" schedules, the decision says, was urged by the respondent railroads for the purpose of restoring a balance of traffic between the St. Louis and Chicago gateways which had been disturbed by downward adjustments of rates between Kansas City and Chicago.

In a separate concurring opinion Commissioner Porter noted his agreement with

the result of the majority decision because the rates under review were already in effect on intrastate traffic. He went on to say, however, that "the need for an adaptation and modernization of railroad freight rates to fit existing conditions is extremely urgent." Mr. Porter continued to urge consideration of the plan of making rates set out in his concurring expression on the decision (reviewed in the *Railway Age* of May 27, page 927) wherein the commission condemned certain "all-freight" rates as set up in three different sections of the country. Briefly, the plan there outlined by Mr. Porter would contemplate the elimination of carload minimum weights on merchandise traffic and the establishment instead of a minimum carload charge with rate discounts as incentives for loading above a weight which would produce the minimum charge per car.

Club Meetings

The Women's Traffic Club of Greater New York will hold its next meeting on October 10 in the Fifth Avenue restaurant, New York. Robert Butterfield, retired senior locomotive engineer of the New York Central (who once piloted the Twentieth Century Limited) will speak on "As An Engineman Looks at the Traffic Situation."

The Metropolitan Traffic Association of New York will hold its next meeting at the Hotel Imperial, New York, October 10. Prior to the regular meeting a lecture on Section 16 and beyond of the Interstate Commerce Act will start at 6:45.

The Canadian Railway Club will hold its next meeting on October 16 at the Windsor hotel, Montreal, Que. Robert S. Henry, assistant to president, Association of American Railroads, will present a paper entitled "Public Relations."

The Car Department Association of St. Louis will hold its next meeting on October 16 at the Hotel De Soto, St. Louis, Mo. A. W. Cox, Norton Company, will present a paper "Grinding and Grinding Wheels as applied to Railroad Shops and Roundhouses," including two sound motion pictures on manufacture and uses of grinding wheels. A dinner will precede the meeting at 6:15 p. m.

The Car Foremen's Association of Omaha, Council Bluffs and South Omaha Interchange will hold its next regular meeting on October 19 at the Burlington station, Omaha, Nebr.

The Car Foremen's Association of Chicago will hold its annual meeting and election of officers on October 7 at the La Salle hotel, Chicago. The program includes dancing and entertainment.

Freight Car Loading

Loading of revenue freight for the week ended September 30 totaled 834,640 cars, the Association of American Railroads announced on October 5. This was an increase of 19,812 cars, or 2.4 per cent, above the preceding week; an increase of 137,732 cars, or 19.8 per cent, above the corresponding week in 1938; but a decrease of 9,221 cars, or 1.1 per cent, below the same week in 1937.

At the same time, the A. A. R. an-

nounced that this week loadings were some 40 per cent higher than those for May of this year, at which time the Association estimated that with present equipment the nation's railroads could handle 25 per cent more traffic. This estimate was based on a study made at that time to ascertain the equipment needs and the carrying capacity of the railroads. Thus, it is pointed out by the A. A. R., the railroads are now handling with present equipment, an increase in traffic of, not 25 per cent, but 40 per cent.

As reported in last week's issue, the loadings for the previous week ended September 23, totaled 814,828 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings			
For Week Ended Saturday, September 23			
Districts	1939	1938	1937
Eastern	170,077	124,791	163,840
Allegheny	163,033	117,747	162,934
Pocahontas	60,375	49,451	58,126
Southern	113,564	106,345	117,642
Northwestern	125,267	99,633	138,205
Central Western ..	122,641	114,120	127,818
Southwestern ..	59,871	57,617	68,320
Total Western Districts	307,779	271,370	334,343
Total All Roads ..	814,828	669,704	836,885
Commodities			
Grain and Grain Products	46,791	39,577	35,832
Live Stock	19,552	16,509	21,204
Coal	158,842	130,275	156,179
Coke	9,400	6,182	10,855
Forest Products ..	35,754	31,903	39,090
Ore	58,293	27,079	65,728
Merchandise l.c.l. ..	162,098	153,638	173,406
Miscellaneous	324,098	264,541	334,591
September 23 ...	814,828	669,704	836,885
September 16 ...	805,733	660,163	822,795
September 9 ...	667,409	568,707	708,202
September 2 ...	721,748	648,029	801,539
August 26 ...	688,591	620,557	783,476
Cumulative Total, 38 Weeks	23,591,027	21,442,247	28,302,089

In Canada.—Carloadings for the week ended September 23 totaled 72,157 as compared with 71,274 in the previous week and 60,664 in the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics. The week's load-

ings were the heaviest for any week since 1930.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Sept. 23, 1939	72,157	28,490
Sept. 16, 1939	71,274	26,852
Sept. 9, 1939	60,572	19,865
Sept. 24, 1938	60,664	18,819
Cumulative Totals for Canada:		
Sept. 23, 1939	1,761,591	826,470
Sept. 24, 1938	1,725,693	759,605
Sept. 25, 1937	1,887,057	1,007,256

"Back to the Rails Movement" Brings Results in Council Bluffs

Early in 1939, a group of engineers, brakemen and other employees of railroads in Council Bluffs, Iowa, realized that if they did not attempt to stop the diversion of traffic from the railroads which employed them they might eventually lose their jobs. Their first step was to organize railway employees into a "back to the rails movement" with the thought that they could impress upon local merchants the necessity for shipping by rail in order to maintain railroad payrolls and the business derived therefrom. The second step was to enlist the Council Bluffs Nonpareil, a daily newspaper, in the development of a "railroad appreciation week."

Since this beginning, the Chamber of Commerce and business men have responded, with the result that a "railroad appreciation week" will be held on October 8 to 14 with the promise that it will be one of the finest demonstrations of public interest in the railroads that has been staged in recent years. So keen has been the interest that for two weeks prior to the celebration townspeople were wearing engineers' caps and railroad trademarks on the streets. The program for the week includes a gathering at Palos Park on Monday, a barbecue on Tuesday, a homecoming and parade on Wednesday, a banquet for railroad executives on Thursday, a concert by railroad bands on Friday and a dance on Saturday. The main events set for each day will not be the only features of that particular 24 hours. In addition, there

will be a train-calling contest by non-railroad men, open house on the railroads and awarding of prizes for essays by school children on the importance of the railroads to Council Bluffs and the nation. Prizes for window decorations by stores also will be awarded.

T. N. E. C. Witness Hits High Cost of Oil Transportation

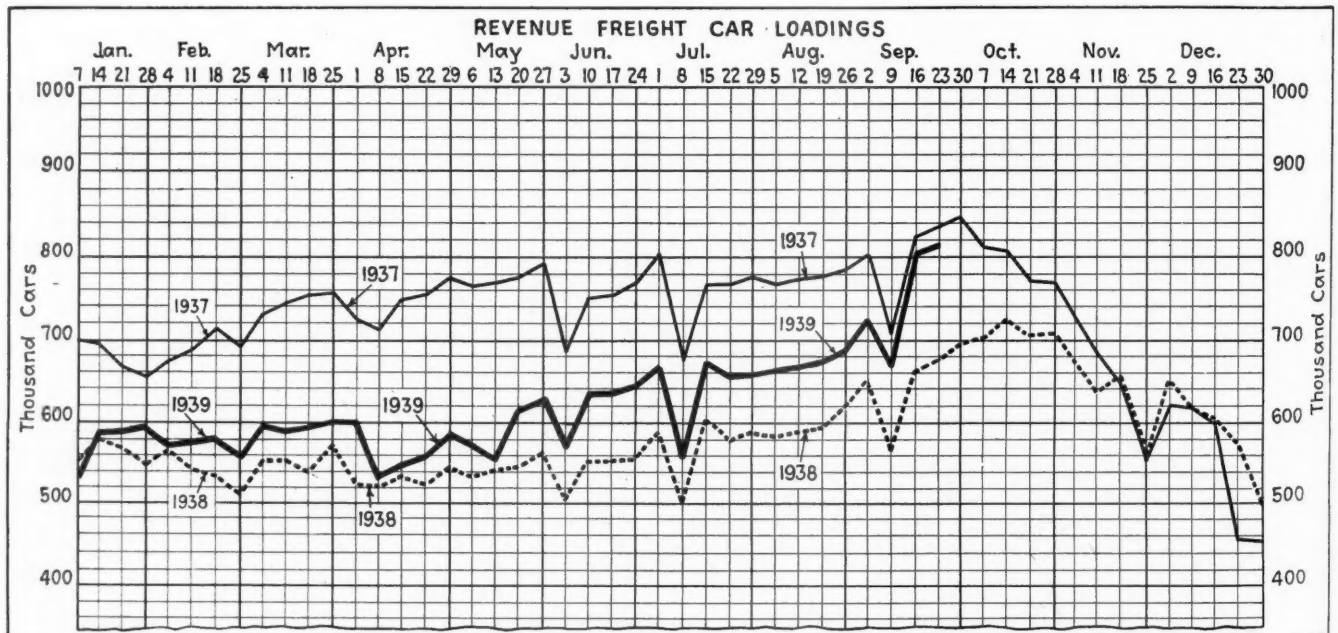
John E. Shatford of El Dorado, Ark., a lessor of railway tank cars to oil refiners, in testifying before the Temporary National Economic Committee on October 2, advocated reduced rail rates and the elimination of economic controls as the best means of saving the oil industry from "destruction." Mr. Shatford, who told the committee that he formerly was in the refining business proper, advocated a vigorous administration of requirements that oil companies owning pipe lines make them available to others as common carriers.

Mr. Shatford also suggested that freight rates on oil might be reduced as much as 35 per cent and said that well-informed persons had expressed the opinion that such a policy would not be detrimental to rail revenues. Such a policy would, he predicted, prevent further diversion of traffic to pipe lines.

Specifically, the witness advocated the following measures to alleviate the high cost of transportation situation which, he asserted exists in the petroleum industry:

1. Divorce the ownership of gasoline and crude oil pipe lines so that actual common carrier status will result. Furthermore, so that the large earnings of the pipe lines cannot be used for the purpose of invading wider markets at lower prices, thereby shutting out rail competition.

2. Create a control authority to enforce common carrier practices, apart from the Interstate Commerce Commission, thereby dissociating the duty equitably to enforce law from the prejudicial obligation to foster overall policies that will promote earnings by rail carriers. This would let ownership rest where it is, yet substan-



tially increase enforcement of the law. It is urged that at the same time the Commodities Clause of the Interstate Commerce Act be applied to pipe lines.

3. Accept pipe line costs of transportation as an accurate measure of the value of transportation services performed by rails and reduce rail rates to competitive levels.

Commission Hands Down Motor Carrier Decisions

The Interstate Transit Lines, Inc., a motor carrier affiliate of the Union Pacific and the Chicago & North Western, has been authorized by Division 5 of the Interstate Commerce Commission to continue operations as a common carrier by motor vehicle of passengers, baggage, express, and newspapers, in interstate and foreign commerce, over specified routes between Milwaukee, Wis., and Chicago, Ill.; between Chicago, Ill., and the Illinois-Iowa boundary near Fulton and Rock Island, Ill., and between Dixon, Ill., and Rockford, including service at intermediate points, by reason of having been engaged in such operations on June 1, 1935, and continuously since.

The Louisville & Nashville would be denied the right to operate as a common carrier by motor vehicle in interstate and foreign commerce of general commodities between Elizabethtown, Ky., and Madisonville, and between Hopkinsville, Ky., and Nashville, Tenn., if the Interstate Commerce Commission adopts a recommended order of Joint Board No. 25, composed of D. C. Moore of Kentucky and Leon Jourlmon, Jr., of Tennessee. The Joint Board found that the company proposes to establish motor carrier service in lieu of rail service for less-than-carload shipments of general commodities between points on the above-mentioned routes. A motor carrier now serving these points, according to the report, offered to coordinate its service with the railroad to effectuate better service. This, the railroad refuses to do. As a result the Joint Board reaches the conclusion that the added service to be offered by the railroad is not needed at this time.

In another decision Joint Board No. 207, composed of Walter K. Granger of Utah, has recommended to the commission that it authorize the Rio Grande Motor Way, Inc., a motor carrier affiliate of the Denver and Rio Grande Western, to operate as a common carrier by motor vehicle in interstate and foreign commerce, of passengers, express, mail and newspapers between Salt Lake City, Utah, and Park City, over a specified route with service to all intermediate points.

New Haven Issues Report on "L'Affaire Upjohn"

The "premature-lighter-upper" who has sinned in the non-smoking car will sin no more. That is, not in a New York, New Haven & Hartford commuters' train, unless he wants to gain the censure of 4,791 definitely-ascertained patrons of the road who flicked an angry lash at these scoff-laws answering a questionnaire circulated by the road. At the same time a new operating policy makes the road to his

regeneration easier than the proverbial "straight and narrow."

The whole thing started last Spring when the railroad circulated the now-famous Upjohn quiz booklet, which the readers of the *Railway Age* of March 4 will recall as a humorous illustrated booklet recounting the sad tale of Commuter Upjohn who, because of a cold, sat in the non-smoking car but was as much enveloped in smoke as though he had chosen the smoking car. At its end was a page of six key question to tempt commuter-opinion on ways and means to mitigate our victim's plight in the future.

Now comes the New Haven with an 11-page "report" on the "affaire" illustrated, as was the questionnaire, by Frank Etienne of comic-strip fame. A total of 6,494 commuters answered the smoking questionnaire. Some 1,780 went so far as to submit further comments in writing. Of those who co-operated in the plebiscite, 73 per cent stated their objection to smoking in non-smoking cars, although 73 per cent of this 73 per cent are smokers themselves and hence cannot be classed as professional kill-joys.

On the basis of the questionnaire (and here the New Haven pointed out that it doesn't care one way or the other as long as all commuters are satisfied) has inaugurated the following set-up on an experimental basis in the heavily-traveled New York commuting zone, effective September 26. Some 200 coaches in the area have been plainly identified either as smoking or non-smoking cars and all smoking cars have distinctive markings on the outside near the steps, in the interior and in the vestibule. Additional smoking cars have been provided on many heavy commuters trains, and, in place of the usual custom of placing such cars only at the

front or rear, are spaced conveniently throughout the train. Finally, a study is being made of the possibility of improving the ventilation in smoking cars, and when an adequate system is devised, will be installed experimentally.

The "report" also contains quotations from the 1,780 extra comments received plus some off-the-record remarks. Suggestions include an automatic sprinkler system for the discipline of illicit smokers, enforcement of the rule by trainmen, better ventilation and the selection of good-looking girls under 25 as trainmen.

Bridge and Building Convention Program

The American Railway Bridge and Building Association will hold its forty-sixth annual convention at the Hotel Stevens, Chicago, on October 17-19, the program for which follows:

TUESDAY, OCTOBER 17
Morning Session—10 a. m.

Convention called to order
Opening address by C. E. Johnston, chairman, Western Association of Railway Executives, Chicago
Greetings from the American Railway Engineering Association, E. M. Hastings, (chief engineer, R. F. & P., Richmond, Va.), President
Greetings from the Roadmasters and Maintenance of Way Association, G. L. Sifton (chief engineer maintenance of way & structures, Eastern Lines, Southern, Charlotte, N. C.), President
Greetings from the Bridge and Building Supply Men's Association, K. T. Batchelder (manager railroad sales, Insulite Co., Chicago), President
Address by President Armstrong Chinn (chief engineer, Alton, Chicago)
Report of Committee on The Maintenance of Shop and Enginehouse Roofs; G. S. Crites, chairman (division engineer, B. & O., Punxsutawney, Pa.)

Afternoon Session—2 p. m.

Report of Committee on Deteriorated Concrete—Causes, Detection and Methods of Repairs; S. T. Corey, chairman (assistant bridge engineer, C. R. I. & P., Chicago)
Address on Maintaining Old Masonry, by J. F. Leonard, engineer bridges and buildings, Central Region, Penna., Pittsburgh, Pa.
Report of Committee on Bridge Painting Problems

Cover Page of New Haven's
"Report" on Commuters' Smoking Questionnaire



Resulting from Deferred Maintenance; R. W. Johnson, chairman (assistant engineer, C. M. St. P. & P., Chicago)

Tuesday Evening—8 p. m.

Moving pictures—Trees and Men—films portraying the logging and lumbering operations incident to the preparation of structural timber and lumber for use in bridge and building work, presented through the courtesy of the Weyerhaeuser Sales Company

WEDNESDAY, OCTOBER 18

Morning Session—9:30 a. m.

Report of Committee on Glazing Maintenance in Shops and Enginehouses; F. H. Soothill, chairman (chief estimator, I. C., Chicago)

Address on Strengthening Old Bridges to Meet the Demands of Today's Traffic, by G. A. Haggander, assistant chief engineer, C. B. & Q. System, Chicago

Report of Committee on Preframing Treated Timber for Replacement Purposes; N. D. Howard, chairman (engineering editor, Railway Age, Chicago)

Luncheon—12:15 p. m.

Address on Current Railway Problems

Afternoon Session—2 p. m.

Report of Committee on Pumping Equipment to Meet Today's Requirements; M. P. Walden, chairman (assistant supervisor, bridges and buildings, L. & N., Evansville, Ind.)

Address on Meeting Today's Requirements in Railway Structures, by A. T. Hawk, engineer of buildings, C. R. I. & P., Chicago

Report of Committee on The Elimination of Slow Orders in Connection with Bridge Repair and Renewal; H. B. Christianson, chairman (division engineer, C. M. St. P. & P., Savannah, Ill.)

Wednesday Evening

Annual dinner jointly with the Bridge and Building Supply Men's Association

THURSDAY, OCTOBER 19

Morning Session—9:30 a. m.

Report of Committee on Present-Day Methods of Safeguarding Bridge Structures; E. C. Neville, chairman (bridge and building master, C. N. R., Toronto, Ont.)

Closing business

On Thursday afternoon the members will visit the paint manufacturing plant of the Sherwin-Williams Company at Kensington, Ill.

Approximately 35 manufacturers of materials used in the construction and maintenance of bridge, building and water service facilities will present an exhibit of these products in a hall adjacent to the convention room.

How the War Affects Britain's Railroads

(Continued from page 532)

date in the month of September were extended to the end of the month.

In all cases suburban train schedules have been drastically cut, but running times have generally been preserved. In the case of through trains not only have the number of runs been restricted but terminal-to-terminal time has been lengthened due to temporary intermediate stops to care for business handled by cancelled local trains. Suburban services of the Southern have been reduced from 50 to 70 per cent. Only a few sleeping cars are running on long distance trains out of London and through runs between London and Edinburgh are provided now only by the London & North Eastern.

Transportation of British troops to the Southern coast for the southern journey to France is reported to have been effected without a hitch. It has been particularly necessary during these movements that passenger equipment be available and the lines

left clear; hence the severe curtailment of normal passenger service.

Due to the fact that a great deal of the freight movement occurs at night when necessity of partial blackout exists, the Railway Executive Committee has ordered shippers to place a white label clearly addressed in black ink or type on all shipment during the period of emergency lighting. Bills of lading must be typed clearly or written in black ink.

Special Train for R. B. A. Annual Dinner

In connection with the annual dinner of the Railway Business Association at Chicago on November 9 the New York Central will operate a special train between New York and Chicago. Westbound the train will leave Grand Central terminal, New York, at 6:12 p. m., November 8, and arrive in Chicago at 10:20 a. m. November 9. Returning, the special will leave La Salle street station at 3 p. m., November 10, arriving in New York at 9 a. m., November 11.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—R. P. Ives, 350 Fifth Ave., New York, N. Y.

ALLIED RAILWAY SUPPLY ASSOCIATION.—J. F. Gettrust, P. O. Box 5522, Chicago, Ill. Annual meeting, October 17-19, 1939, Hotel Sherman, Chicago, Ill.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R. M. & O. R. R., 327 S. La Salle St., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. P. Soebbing, 1431 Railway Exchange Bldg., St. Louis, Mo. Annual meeting, October 24-26, 1939, Adelphia Hotel, Philadelphia, Pa.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—B. D. Branch, C. R. R. of N. J., 143 Liberty St., New York, N. Y. Annual meeting, October 26-28, 1939, Arlington Hotel, Hot Springs, Ark.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting, June 4-6, 1940, Hotel Stevens, Chicago, Ill.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill. Annual meeting, January 19-20, 1940.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Berger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill. Annual meeting, October 9-12, 1939, Hotel St. Francis, San Francisco, Cal.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill. Annual meeting, October 17-19, 1939, Hotel Stevens, Chicago, Ill.

AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 Rector St., New York, N. Y.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—J. M. Hurley, N. Y. O. & W. Ry., Middletown, N. Y. Next meeting, December 8-9, 1939, Netherland Plaza Hotel, Cincinnati, Ohio.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the Association of American Railroads, Engineering Division.—W. S. Lacher, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 12-14, 1940, Palmer House, Chicago, Ill.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—M. W. Jones, Baltimore & Ohio R. R., 1105 B. & O. R. Bldg., Baltimore, Md. Fall meeting, October 27-28, 1939, The Greenbrier Hotel, White Sulphur Springs, W. Va.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Tower Bldg., Washington, D. C. Annual meeting, October 23-24, 1939, Hotel Continental, Kansas City, Mo.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—C. E. Davies, 29 W. 39th St., New York, N. Y. Annual meeting, December 4-8, 1939, Hotel Bellevue-Stratford, Philadelphia, Pa.

Railroad Division—Marion B. Richardson, 21 Hazel Ave., Livingston, N. J.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York, N. Y.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual meeting, January 23-25, 1940, Hotel Coronado, St. Louis, Mo.

ASSOCIATION OF AMERICAN RAILROADS.—H. J. Forster, Transportation Bldg., Washington, D. C.

Operations and Maintenance Department.—Charles H. Buford, Vice-President, Transportation Bldg., Washington, D. C. Operating-Transportation Division.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.

Operating Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Transportation Section.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.

Fire Protection and Insurance Section.—W. F. Steffens, New York Central, Room 3317, 230 Park Avenue, New York, N. Y.

Freight Station Section.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Protective Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York, N. Y.

Engineering Division.—W. S. Lacher, 59 E. Van Buren St., Chicago, Ill.

Annual meeting, March 12-14, 1940, Palmer House, Chicago, Ill.

Construction and Maintenance Section.—W. S. Lacher, 59 E. Van Buren St., Chicago, Ill.

Annual meeting, March 12-14, 1940, Palmer House, Chicago, Ill.

Electrical Section.—W. S. Lacher, 59 E. Van Buren St., Chicago, Ill.

Next meeting, October 24, 1939, Hotel Sherman, Chicago, Ill.

Signal Section.—R. H. C. Balliet, 30 Vesey St., New York, N. Y.

Mechanical Division.—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill.

Electrical Section.—J. A. Andreucetti, 59 E. Van Buren St., Chicago, Ill.

Annual meeting, October 24-26, 1939, Hotel Sherman, Chicago, Ill.

Purchases and Stores Division.—W. J. Farrell, 30 Vesey St., New York, N. Y.

Freight Claim Division.—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill.

Motor Transport Division.—George M. Campbell, Transportation Bldg., Washington, D. C.

Car-Service Division.—E. W. Coughlin, Transportation Bldg., Washington, D. C.

Finance, Accounting, Taxation and Valuation Department.—E. H. Bunnell, Vice-President, Transportation Bldg., Washington, D. C.

Accounting Division.—E. R. Ford, Transportation Bldg., Washington, D. C.

Annual meeting, 1940, White Sulphur Springs, W. Va.

Treasury Division.—E. R. Ford, Transportation Bldg., Washington, D. C.

Traffic Department.—A. F. Cleveland, Vice-President, Transportation Bldg., Washington, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Claim Agent, Alton R. R., 340 W. Harrison St., Chicago, Ill. Annual meeting, 1940, Providence, R. I.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—W. S. Carlisle, National Lead Company, 900 W. 18th St., Chicago, Ill. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 4468 Oxford Ave., N. D. G., Montreal, Que.

Regular meetings, second Monday of each month except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT ASSOCIATION OF ST. LOUIS, Mo.—J. J. Sheehan, 1101 Missouri Pacific Bldg., St. Louis, Mo. Regular meetings, third Tuesday of each month, except June, July and August, Hotel De Soto, St. Louis, Mo.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—Frank Kartheiser, Chief Clerk, Mechanical Dept., C. B. & Q., Chicago, Ill. Annual meeting, October 17-19, 1939, Hotel Sherman, Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.

CENTRAL RAILWAY CLUB OF BUFFALO.—Mrs. M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month, except June,

Equipment and Supplies

Sept. Equipment Shows Smart Rise

Freight car buying double that of rest of year; locomotive total now at 213

American equipment houses received orders during the month of September for a total of 52 locomotives; 24,231 freight cars and 3 passenger train cars.

The volume of freight car orders during the month is more than double the number of cars purchased during the previous eight months of the year and brings the total for the year thus far to 33,623, which is double the 12-months' record of last year and 250 per cent greater than the January-September total of 1938.

The 52 locomotives (23 steam; 20 electric and 9 Diesel-electric) brings the total for the year thus far to 213 units. This

is more than double the number of locomotives ordered during the corresponding period of 1938 and is not far short of the 12-months' total of 228 locomotives ordered during the entire year. The total for the year thus far also exceeds the 12-months' total of each of the years 1931 to 1935, inclusive.

The total of 3 passenger-train cars ordered makes a total for the year thus far of 177 cars. This nine-months' total exceeds the 118 cars ordered during the corresponding period of 1938 by a substantial amount.

There are inquiries for, or contemplated purchases outstanding of, 49 locomotives (20 steam and 29 Diesel-electric and others); some 9,000 freight cars and 2 streamlined trains of 17 cars each. Canadian roads are inquiring for 24 locomotives, 1,300 freight cars and 10 passenger-train cars, and have contemplated programs for about 25 additional locomotives and over 2,000 freight cars.

The carriers ordered 188,854 tons of rail during the month, which brings the total for the calendar year thus far to 721,737 tons, almost four times the tonnage ordered during the corresponding nine months of 1938. In the export field the North-

Domestic Equipment Orders Reported in Issues of the Railway Age in September, 1939 (Excluding Sept. 2)

LOCOMOTIVES

Date	Name of Company	No.	Type	Builder
Sept. 16	Pennsylvania	20	Electric GG-1	Company Shops
Sept. 23	Detroit, Toledo & Ironton	2	2-8-4	Lima Locomotive Works
Sept. 23	Louisville & Nashville	1	Diesel-electric	Electro-Motive Corp.
Sept. 23	Seaboard Air Line	1	Diesel-electric	American Locomotive Corp.
Sept. 30	Norfolk & Western	7	Diesel-electric	Electro-Motive Corp.
Sept. 30	Chicago, Milwaukee, St. Paul & Pacific	10	2-8-2	Company Shops
Sept. 30	Boston & Maine	10	4-8-4	Baldwin Locomotive Works
Sept. 30	Boston & Maine	1	4-8-2	Baldwin Locomotive Works

FREIGHT CARS

Sept. 9	Chesapeake & Ohio	100	Gondola	Greenville Steel Car
		400	Gondola	American Car & Foundry
		500	Hopper	American Car & Foundry
		650	Hopper	Pullman-Standard
		700	Hopper	General American
		150	Hopper	Ralston Steel Car
Sept. 9	Virginian	500	Hopper	Company Shops
Sept. 16	Pennsylvania	2,000	Box	Company Shops
Sept. 23	Wisconsin Central	500	Auto-Box	Company Shops
Sept. 23	Tennessee Coal, Iron & Railroad Co.	100	Auto-Box	Pullman-Standard
Sept. 23	Wheeling & Lake Erie	100	Flat	Pullman-Standard
Sept. 23	Norfolk & Western	49	Ore	Pullman-Standard
		400	Hopper	Pullman-Standard
		100	Hopper	Ralston Steel Car
		750	Hopper	Virginia Bridge Co.
		750	Hopper	Ralston Steel Car
		500	Hopper	Bethlehem Steel Co.
Sept. 23	Virginian	500	Hopper	Company Shops
Sept. 30	Union Pacific	2,000	Box	Company Shops
Sept. 30	Chicago, Milwaukee, St. Paul & Pacific	2,000	Box	Company Shops
Sept. 30	Chicago, Burlington & Quincy	182	Box	Company Shops
Sept. 30	New York Central	3,500	Hopper	Despatch Shops, Inc.
		500	Box	Despatch Shops, Inc.
Sept. 30	Chicago & North Western	500	Hopper	Pullman-Standard
Sept. 30	Delaware & Hudson	300	Box	Mt. Vernon Car
Sept. 30	Norfolk & Western	500	Hopper	American Car & Foundry
		500	Hopper	Bethlehem Steel Co.
		500	Hopper	Virginia Bridge Co.
		500	Hopper	Ralston Steel Car
		500	Hopper	Bethlehem Steel Co.
Sept. 30	Erie	500	Box	American Car & Foundry
		200	Box	Pullman-Standard
		200	Hopper	Pullman-Standard
		300	Hopper	General American
		250	Gondola	Greenville Steel Car
		50	Flat	Youngstown Steel Car
Sept. 30	Illinois Central	750	Gondola	General American
		750	Hopper	Pullman-Standard
		500	Box	American Car & Foundry
		500	Box	Mt. Vernon Car

PASSENGER-TRAIN CARS

Sept. 16	Pennsylvania	3	Edward G. Budd Mfg. Co.
----------	--------------	---	-------------------------

July and August, Hotel Statler, Buffalo, N. Y.

EASTERN ASSOCIATION OF CAR SERVICE OFFICERS.—J. T. Bougher, 424 W. 33rd St. (11th floor), New York, N. Y.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION (See Locomotive Maintenance Officers' Association).

INTERNATIONAL RAILWAY MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual meeting, October 17-19, 1939, Hotel Sherman, Chicago, Ill.

LOCOMOTIVE MAINTENANCE OFFICERS' ASSOCIATION.—F. T. James, Master Mechanic, Delaware, Lackawanna & Western, Hoboken, N. J. Annual meeting, October 17-19, 1939, Hotel Sherman, Chicago, Ill.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y. Annual meeting, October 17-19, 1939, Hotel Sherman, Chicago, Ill.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—Clyde S. Bailey, New Post Office Bldg., Washington, D. C. Annual meeting, December 10-12, 1940, Miami, Fla.

NATIONAL RAILWAY APPLIANCE ASSOCIATION.—C. H. White, Room 1826, 208 S. La Salle St., Chicago, Ill. Exhibit in connection with A. R. E. A. Convention, March 11-14, 1940, International Amphitheatre, Chicago, Ill.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Touraine, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Thursday of each month, except June, July, August, September and December, 29 W. 39th St., New York, N. Y. Annual dinner, December 7, 1939.

PACIFIC RAILWAY CLUB.—William S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately at San Francisco and Los Angeles.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, First National Bank Bldg., Chicago, Ill. Annual dinner, November 9, 1939, Hotel Stevens, Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Mc C. Price, Allen-Bradley Company, 600 W. Jackson Blvd., Chicago, Ill. Next meeting, October 24-26, 1939, Hotel Sherman, Chicago, Ill.

RAILWAY FIRE PROTECTION ASSOCIATION.—(See Association of American Railroads—Fire Protection and Insurance Section.)

RAILWAY FUEL AND TRAVELING ENGINEERS' ASSOCIATION.—T. Duff Smith, 1255 Old Colony Bldg., Chicago, Ill. Annual meeting, October 17-19, 1939, Hotel Sherman, Chicago, Ill.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone section of A. A. R.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 903 Syndicate Trust Bldg., St. Louis, Mo. Annual meeting, May 21-22, 1940, Brown Hotel, Louisville, Ky.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. A. R., Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—D. W. Brantley, C. of Ga. Ry., Savannah, Ga.

TORONTO RAILWAY CLUB.—D. M. George, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—Lewis Thomas, Q. & C. Company, 59 E. Van Buren St., Chicago, Ill. Meets with Roadmasters' and Maintenance of Way Association.

UNITED ASSOCIATIONS OF RAILROAD VETERANS.—Roy E. Collins, 112 Hatfield Place, Port Richmond, Staten Island, N. Y. Annual meeting, October 14-15, 1939, Hotel Roanoke, Roanoke, Va.

WESTERN RAILWAY CLUB.—W. L. Fox (Executive Secretary), Room 822, 310 South Michigan Ave., Chicago, Ill. Regular meetings, third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

Western of Brazil ordered 23,000 tons of rail and the Pere Marquette purchased 1,000 tons for use on its lines in Canada.

Rock Island to Spend \$4,375,000

The Chicago, Rock Island & Pacific has been authorized by the District Court to spend \$4,375,000 for equipment and repairs. The program includes the purchase of ten 600 hp. Diesel-electric switching locomotives to cost \$625,000; ten 300 hp. to cost \$350,000 and 1,000 box cars to cost \$2,800,000.

Santa Fe to Spend \$21,000,000

An improvement program to be undertaken by the Atchison, Topeka & Santa Fe involves the expenditure of approximately \$21,000,000 for the purchase of 91,000 tons of rails and fastenings, and 2,800 freight cars, the rebuilding of 2,500 box, auto and refrigerator cars in company shops, an accelerated locomotive and car repair program, and the double tracking of 24 miles of its main line from D. T. Junction to Joseph City, Ariz. The rail program contemplates the installation of 286 miles of 131-lb. rail in the Chicago-California main line, and 151 miles of 112-lb. rail in other main line tracks.

The freight cars to be purchased include 1,800 box cars, 200 coal cars, 100 flat cars, 450 refrigerator cars, and 250 gondolas. The box cars will be standard 100,000 lb. capacity cars with roofs lined with an absorbent material to prevent condensation of moisture. Of the refrigerator cars, 300 will be of 40 ft. and 150 will be 50 ft. long. The flat cars will be 70 ft. long and particularly adapted for loading farm machinery and farm implements. The mill-type gondolas will be 56 ft. and 65 ft. long and will be used in special service for loading structural steel. Of the cars to be rebuilt, 900 box cars will be reconstructed in the Topeka shops, 600 automobile cars at the Empire shops in Chicago and 1,000 refrigerator cars at the Wichita shops. The program will be financed in part through treasury cash and in part by the issuance of \$8,000,000 ten-year equipment trust notes.

FREIGHT CARS

THE GREAT NORTHERN is inquiring for 1,500 ore cars of 75 tons' capacity.

THE WABASH will convert 1,000 automobile cars to steel-sheathed box cars.

THE UTAH COPPER COMPANY is inquiring for 100 ore cars of 100 tons' capacity.

THE NEW YORK, NEW HAVEN & HARTFORD is inquiring for from 500 to 1,000 box cars of 50 tons' capacity.

THE LEHIGH & NEW ENGLAND is inquiring for 100 cement cars of 70 tons' capacity.

THE NEVADA CONSOLIDATED COPPER COMPANY has ordered 30 air-dump cars of 30-cu. yd. capacity from the Austin-Western Road Machinery Company.

ROYAL STATE RAILWAYS OF SIAM.—Sealed tenders for the supply of all steel covered goods wagons will be received by

the Superintendent of Stores, Royal State Railways, Bangkok, Thailand (Siam), up to 14.00 o'clock, December 29. Tender forms are obtainable from Messrs. Sandberg, 25 Broadway, New York.

THE SEABOARD AIR LINE is inquiring for 1,250 freight cars including 1,000 box and 150 flat, both of 50 tons' capacity and 100 gondola cars of 70 tons' capacity.

THE UNITED STATES WAR DEPARTMENT, Chief of Engineers, Washington, D. C., is asking for bids on October 10 for 125 tank cars for transporting gasoline.

THE DETROIT, TOLEDO & Ironton has ordered 25 covered hopper cars of 70 tons' capacity from the American Car & Foundry Co. Inquiry for this equipment was reported in the *Railway Age* of September 16, page 425.

THE DELAWARE, LACKAWANNA & WESTERN, reported in the *Railway Age* of September 30, page 505, as preparing plans to ask for bids for 1,100 freight cars, is now inquiring for 500 box cars and 500 hopper cars, both of 50 tons' capacity, and 100 gondola cars of 70 tons' capacity.

THE CENTRAL OF BRAZIL has ordered 100 flat cars; 200 box cars; and 200 gondola cars, all of 30 tons' capacity, from the American Car & Foundry Company. In addition, an order for 250 box cars; 150 flat cars; and 100 gondola cars was placed with the Pullman-Standard Car Export Corporation. E. B. Cotrim, chief engineer, Praca da Republica, Rio de Janeiro, Brazil.

PASSENGER CARS

THE CHICAGO, NORTH SHORE & MILWAUKEE has asked the federal district court for permission to purchase two four-unit all-electric trains capable of a speed of 100 m.p.h. The trains will be completely air conditioned and electrically heated. They will cost about \$299,000, and will be placed in service between Chicago and Milwaukee on June 1, 1940.

An order for the trains has been placed with the St. Louis Car Company, subject to the approval of the district court.

THE PENNSYLVANIA will remodel 85 steel coaches in its own shops at Altoona, Pa., the work to be started before the close of the year and completed by June 1. Of the 85 cars, 25 will have the interiors constructed in accordance with the Pennsylvania's new long-distance overnight coach design. They will be equipped with individually adjustable reclining and revolving seats for 56 passengers and the exteriors will be streamlined. The remaining 60 will conform with the railroad's new interior coach design for through service not involving overnight travel.

IRON AND STEEL

THE CENTRAL OF GEORGIA has ordered 4,250 tons of rails from the Tennessee Coal, Iron & Railroad Co.

THE MOBILE & OHIO has been authorized by the federal district court to purchase

3,000 tons of 90-lb. rails and necessary fastenings, at a cost of \$145,000.

THE ST. LOUIS-SAN FRANCISCO has ordered 16,750 tons of 112-lb. rails and necessary track fastenings from the Tennessee Coal, Iron & Railroad Co.

THE NORFOLK & WESTERN has placed orders for 25,000 tons of 131-lb. rail; 18,750 tons to the Carnegie-Illinois Steel Corporation and 6,250 tons to the Bethlehem Steel Company.

THE CHICAGO GREAT WESTERN has ordered 5,000 tons of rails, placing 4,000 tons with the Carnegie-Illinois Steel Corporation and 1,000 tons with the Inland Steel Company. A total of 1,800 tons of rail fastenings also were ordered.

THE ILLINOIS CENTRAL has ordered 10,600 tons of 112-lb. rails, in addition to the 2,000 tons reported in the *Railway Age* of September 16, placing 4,000 tons with the Tennessee Coal, Iron & Railroad Company, 3,300 tons with the Inland Steel Company and 3,300 tons with the Carnegie-Illinois Steel Corporation.

THE SOUTHERN PACIFIC has ordered 60,000 tons of rails from the Columbia Steel Company, the Bethlehem Steel Company and the Colorado Fuel & Iron Company. In addition, it purchased 19,300 tons of fastenings from the Columbia Steel Company, the Bethlehem Steel Company, the Colorado Fuel & Iron Company, the Rail Joint Company, the P & M Company, the National Lock Washer Company and the Ramapo Ajax Division of the American Brake Shoe & Foundry Company.

SIGNALING

THE WABASH has been authorized by the federal district court to spend \$61,300 for the installation of automatic signals and guards at 17 grade crossings in Lafayette, Ind. The sum of \$29,300 will be spent on the project this year, \$14,000 next year and \$18,000 in 1941.

THE ST. LOUIS-SAN FRANCISCO has placed an order with the Union Switch & Signal Co., for the necessary materials to install an automatic interlocking plant at Holdenville, Okla., in conjunction with the Chicago, Rock Island & Pacific. The field installation work will be carried out by the Frisco's signal construction forces.

SALT LAKE & UTAH.—Sealed proposals were received in the office of Helen B. Keating, purchasing agent of this road, Terminal building, Salt Lake City, Utah, until 12 o'clock noon (mountain standard time), October 5, for furnishing the necessary material for six railroad grade crossing protective devices (flashing or protecting signals), to be installed under the federal grade crossing program in the State of Utah.

MISCELLANEOUS

THE PERE MARQUETTE is asking bids for the construction of a car ferry to cost \$1,250,000.

Supply Trade

J. G. Graham has been appointed manager of railway sales and C. H. Reymer has been appointed railway sales engineer for the **Oliver Iron & Steel Corporation**, Pittsburgh, Pa.

The **Linde Air Products Company**, **The Oxweld Railroad Service Company**, the **Carbide & Carbon Chemicals Corporation**, the **Union Carbide Company**, the **Electro Metallurgical Company** and the **Haynes Stellite Company**, units of the **Union Carbide & Carbon Corp.**, have moved their headquarters from 205 East 42nd street, New York, to the Carbide & Carbon building, 30 East 42nd street, New York.

D. H. Young, vice-president in charge of export sales of the American Manganese Steel Division of the **American Brake Shoe & Foundry Co.**, has been appointed director of exports, with headquarters at New York. He is in charge of a new export department which has been established to represent all divisions of the American Brake Shoe & Foundry Co. Mr. Young's first connection with railroad work was in a surveying corps on the Manufacturers Railway, St. Louis, Mo. In 1910 he became associated with manufacturers of manganese steel as engineer for special track work at the St. Louis Steel Foundry and in 1915, he joined the American Manganese Steel Company at Chicago Heights, Ill. He served in various departments and capacities from inspector to vice-president



D. H. Young

in charge of operations and sales for the Pacific Coast and when that company joined the American Brake Shoe & Foundry group, Mr. Young became interested in the export possibilities of manganese steel.

OBITUARY

Charles C. King of the Railroad department of the **Detroit Lubricator Company**, Detroit, Mich., died suddenly in that city on September 24.

Ernest A. LeBeau, representative of

the **Chicago Railway Equipment Company**, with headquarters at Chicago, died in that city on October 1. He had been ailing since January.

Frederick C. Cameron, until recently assistant director of sales at the **Corning Glass Works**, Corning, N. Y., died on September 29, at his home in Corning, after an extended illness. Mr. Cameron



Frederick C. Cameron

was born at Hornellsville, N. Y. (now Hornell), on June 26, 1871, and was educated at Hornell. He was graduated from St. Bonaventure College in the class of 1892 and then attended for two years as a medical student at Columbia University. He subsequently was for two years in the employ of the Erie at Hornell and in 1900, became associated with the **Brady Brass Company**. In January, 1905, he went to Corning as a sales representative of the **Corning Glass Works** and later served as division sales engineer and then as assistant director of sales for the company. Mr. Cameron was active in the affairs of the **Signal Appliance Association** having served on its executive committee and was chairman for the term of 1916-1917. He also took an active interest in civic affairs and was a member of a large number of clubs.

Construction

LOUISVILLE & NASHVILLE.—A contract has been awarded the **Ross & White Company**, Chicago, for a new electric engine coaler, which will be installed at Earlington, Ky.

MISSOURI PACIFIC.—A contract has been awarded the **Ross & White Company**, Chicago, for an electric engine coaler at Sedalia, Mo.

TENNESSEE CENTRAL.—A contract has been awarded the **Ross & White Company**, Chicago, for an N-&W Type electric cinder plant and an electric engine coaler to be installed at the new terminal in Nashville, Tenn.

Financial

CHICAGO & EASTERN ILLINOIS.—*Salary of Trustee.*—Division 4 of the Interstate Commerce Commission has ordered that Benjamin Wham be paid at the rate of \$25,000 a year for his services as trustee of this company.

DELAWARE, LACKAWANNA & WESTERN.—*Abandonment by the Hopatcong.*—Division 4 of the Interstate Commerce Commission has authorized the Hopatcong to abandon the line and the Delaware, Lackawanna & Western to abandon the operation of a line extending from station 2406 plus 00 in a northerly direction to its terminus at station 2434 plus 56, all in Morris County, N. J., approximately one-half mile.

DETROIT & MACKINAC.—*Bonds.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to pledge and repledge to and including December 31, 1941, as collateral security for indebtedness totaling \$235,000, evidenced by a short-term note or notes, \$500,000 of mortgage bonds.

ERIE.—*New Director.*—Carl Howe, vice-president in charge of traffic, with headquarters at Cleveland, Ohio, has been elected a director succeeding Stephen Birch, Mahwah, N. J., who has resigned.

LEHIGH VALLEY.—*Interest modification plan.*—A three-judge federal court which opened hearings on September 29 on the plan of this road for modification of interest payment and extension of maturities under the Chandler Act adjourned further hearings on the plan until December 8 by request of counsel for the road asking delay in hearings to await the outcome of present negotiations between the railroad and the state of New Jersey for settlement of approximately \$9,500,000 in back taxes and penalties. Counsel informed the court that the company would be forced to seek reorganization in the bankruptcy courts unless the state compromised its claims.

R. W. Barrett, vice-president and general counsel, declared that the proposed adjustment plan was suggested by the company to save its security holders from "being put through the wringer and skinned" in receivership and trustee proceedings. He testified that a 5 per cent increase in business would enable the road to pay its interest obligations and that a 10 per cent increase "would put us right back on our feet."

The court dismissed a petition of a group of 13 bond holders that the voluntary plan be dismissed. The court reserved decision on a petition from the same group for modification of an injunction which has stayed execution of a judgment granted in a New York State court for a \$65,000 interest default of the road. The court did modify the injunction, however, to the extent of enabling the bondholders to force the road to press an appeal it had taken from the New York court's judgment.

LOUISIANA & ARKANSAS.—*Abandonment.*—This company would not be per-

mitted to abandon its line extending from Farmersville, Tex., to McKinney, 16.1 miles, if Division 4 of the Interstate Commerce Commission adopts a proposed report of its Examiner, R. Romero. The Examiner found that the abandonment was not warranted at this time, and pointed out that "The evidence supports the conclusion that the damage to which the communities affected would be subjected is greater than any loss that may be sustained by the applicant from continued operation."

LOUISIANA & NORTH WEST.—Reorganization.—Division 4 of the Interstate Commerce Commission has certified to the United States District Court for the Southern District of New York that the results of the balloting by various classes of security holders on this company's reorganization plan produced the following results:

1. Class 1 creditors, holding \$41,000 of prior lien first mortgage bonds, constituting (with accrued interest) 87.2 per cent of the total of the allowed claims of that class voting on the plan, accepted the plan, while creditors holding \$6,000 of the bonds, or 12.8 per cent of the total, voted to reject the plan.

2. Creditors of class 2, holding \$1,580,000 of first mortgage bonds, constituting (with accrued interest) 96.9 per cent of the total of the allowed claims of that class voting on the plan, accepted the plan, while holders of \$51,000 of the bonds, or 3.1 per cent of the total voted to reject the plan.

3. Stockholders of class 5, holding 22,921 shares of common stock, constituting 100 per cent of the total of allowed claims of that class voting on the plan, accepted the plan.

MINNEAPOLIS & ST. LOUIS.—Abandonment.—This company has been denied authority by Division 4 of the Interstate Commerce Commission to abandon a branch line extending from Corwith, Iowa, to St. Benedict, 6.6 miles. A majority of Division 4 found that the volume of traffic was not small enough to justify abandonment and stood on a previous decision denying the company the right to abandon this line.

Commissioner Mahaffie dissented, saying that he thought the certificate should have been granted. He went on to say that "The small amount of traffic available will not justify the continued maintenance of the property, even with the limited operation now being performed over it. The record shows that maintenance has been held at a minimum and if the property is to be continued in operation indefinitely it must be increased, thus increasing the present deficit. While the loss may be small, it is essential that a railroad such as the Minneapolis & St. Louis eliminate even small losses if it is to continue its common carrier service."

NORFOLK SOUTHERN.—Reorganization plan.—The federal district court of Virginia on September 15 approved a new plan of agreement and reorganization of this road as amended. The plan provides

a reduction in total capitalization from \$32,990,000 to \$18,509,129 (a value of \$100 assumed for new no-par-value common stock for purposes of comparison). Fixed interest debt would be cut from \$16,990,000 to \$5,507,000 and fixed charges (including rental for the Durham & South Carolina) reduced from \$890,040 to \$296,300. Total fixed and contingent charges of \$846,991 are provided and capital stock totaling \$6,109,829 as compared with \$16,000,000 capital stock of the old company.

The road would issue the following new securities under the plan: \$607,000 of equipment trust certificates; \$368,000 of 20-year, 4 per cent notes; \$3,918,000 of first mortgage bonds; \$6,892,300 in general mortgage convertible income bonds; and 61,098 shares of no-par-value common stock plus such additional shares as may be necessary to pay general unsecured creditors.

New certificates would be allocated to various security holders, as of July 1, 1939, on the following basis: (1) \$614,000 of equipment trust certificates now outstanding will remain undisturbed and \$607,000 of new equipment trust certificates proposed to be in connection with the acquisition of five new freight locomotives will be assumed; (2) Norfolk & Southern first mortgage 5's would receive \$1,100 new first mortgage 4½'s, Series A; \$50 scrip for the same; \$100 in income bonds; \$50 scrip for income bonds and \$8.33 in cash; (3) Norfolk & Southern first general 5's would get \$450 in first mortgage 4½'s, Series A; \$550 in income bonds and three shares of common stock on account of accrued and unpaid interest; (4) Raleigh & Cape Fear first 5's would receive \$1,000 in first 4½'s, Series A, and 3.16 shares of common stock on account of accrued and unpaid interest; (5) Raleigh & Southport first 5's would receive \$100 in first 4½'s, Series A; \$500 in income bonds; four shares of common stock and 0.76 share of common stock on account of accrued and unpaid interest; (6) Aberdeen & Asheboro first 5's would receive \$500 in first 4½'s, Series A; \$500 in income bonds; and \$300 in income bonds on account of accrued and unpaid interest; (7) Norfolk Southern first and refunding 5's would receive \$100 in first 4½'s, Series A; \$500 in income bonds; four shares of common stock and 0.8 share of common stock on account of accrued and unpaid interest; (8) Suffolk & Carolina first consolidated 5's would receive \$350 in first 4½'s, Series A; \$100 in income bonds and one share of common stock; (9) all unpaid coupons due prior to July 28, 1932, the date of appointment of receivers for the road, would be treated the same as the principal of the respective issues.

Holders of common stock aggregating \$16,000,000 would be allotted per share one common stock purchase warrant enabling the holder to purchase during three years after date of the plan 3/100 share of common stock of the new company at \$10 per share during the first two years and \$12.50 during the third year. General creditors having preferred claims would be paid by the new company in cash to the extent that claims remain unsettled on consummation of the plan. General unsecured claims

would be entitled to receive common stock of the new company at the rate of ¼ share for each \$100 of principal and interest allowed by the court.

The receivers contemplate issuing \$368,000 in receivers' certificates for a rock ballasting and rail program and the balance of the cost of five freight locomotives (total approx. \$675,000) not covered by the \$607,000 equipment trust certificates mentioned above.

The court originally approved a plan of reorganization March 5, 1938. The present plan contains amendments thereto, particularly with respect to the disposition of the property of the Suffolk & Carolina, which, with the exception of certain facilities at Edenton, N. C., and Elizabeth City, will be abandoned.

MISSOURI PACIFIC.—Abandonment by the Houston & Brazos Valley.—The Houston & Brazos Valley has asked the Interstate Commerce Commission for authority to abandon a line extending from Freeport, Tex., to Bryan Mound, 3.4 miles.

PENNSYLVANIA.—Equipment Trust Issue.—This road has awarded an issue of \$8,865,000 of 2¾ per cent equipment trust certificates, Series J, to Salomon Brothers & Hutzler, New York, on a bid of 99.1187. Details of the issue were reported in the *Railway Age* of September 30, page 507.

RAHWAY VALLEY.—Acquisition and Lease.—This company has asked the Interstate Commerce Commission for authority to acquire control of the Rahway Valley Railroad. In another application the company asked authority to acquire control of the Rahway Valley Line by extension of a lease.

SOUTHERN PACIFIC.—Abandonment by the Arizona Eastern.—Division 4 of the Interstate Commerce Commission has authorized the Southern Pacific to abandon the operation and the Arizona Eastern to abandon the line extending from Poston, Ariz., to Florence Junction, 5.6 miles.

WABASH.—Interest Payment.—Receivers for the Wabash have been authorized by the federal district court to pay \$429,231 interest due August 1 and September 1 on certificates of indebtedness issued by the receivers. In making the order the court overruled a motion of the Central Hanover Bank and Trust Company, trustee under two Wabash mortgages, to restrict the payments in certain instances.

Average Prices of Stocks and Bonds

	Oct. 3	Last week	Last year
Average price of 20 representative railway stocks..	35.09	36.24	28.03
Average price of 20 representative railway bonds..	59.96	60.06	59.73

Dividends Declared

Carolina, Clinchfield & Ohio.—\$1.25, quarterly, payable October 20 to holders of record October 10.

Cleveland, Cincinnati, Chicago & St. Louis.—Preferred, \$1.25, quarterly, payable October 31 to holders of record October 4.

Norfolk & Western.—Preferred, \$1.00, quarterly, payable November 11 to holders of record October 31.

Reading Company.—25¢, quarterly, payable November 9 to holders of record October 11.

Continued on next left-hand page

LIMA POWER AT WORK



One of the modern 4-8-4 type locomotives built by Lima for the Grand Trunk Western

POWER that meets the needs of tomorrow!

To meet the new requirements of modern passenger service, locomotives must combine high sustained tractive effort, rapid acceleration to road speed and low operating costs.

LIMA LOCOMOTIVE WORKS,



INCORPORATED, LIMA, OHIO

Railway Officers

EXECUTIVE

William H. Hillis, engineer maintenance of way of the Chicago, Rock Island & Pacific, has been promoted to assistant chief operating officer, a new position, with headquarters, as before, at Chicago, and



William H. Hillis

with jurisdiction over the engineering, construction and maintenance departments. Mr. Hillis was born at Colona, Ill., on March 31, 1886, and entered railway service on January 1, 1906, as a rodman on the Chicago, Burlington & Quincy at Beardstown, Ill. He later served in various capacities in the engineering department of that railway until August 15, 1911, when he was appointed roadmaster, and during the following five years, served in that position on various divisions, then being transferred to the operating department as trainmaster on the Aurora division. In 1925, Mr. Hillis was appointed district engineer of maintenance of the Illinois district, with headquarters at Galesburg, Ill., and in October, 1927, he was advanced to assistant superintendent of the LaCrosse division. Three years later, he was transferred to the Galesburg division, and on December 15, 1931, he was sent to Texas, where as superintendent of construction, he had charge of the construction of a 110-mile line between Childress, Tex., and Pampa. Following the completion of this work, Mr. Hillis returned to the LaCrosse division as assistant superintendent. In July, 1936, Mr. Hillis resigned that position to become engineer maintenance of way of the Rock Island, with headquarters at Chicago.

FINANCIAL, LEGAL AND ACCOUNTING

W. H. Estano, auditor of passenger accounts of the Canadian National, with headquarters at Montreal, Que., retired on pension September 29, after 47 years of service. Mr. Estano was born at Halifax, N. S., on September 29, 1874, and commenced his railway career as a clerk in the audit office of the Intercolonial Railway

at Moncton, N. B., in 1892. He was appointed chief clerk in 1907 and auditor of traffic in 1909. With the consolidation of the railways into the present Canadian National system, Mr. Estano was transferred to Montreal as auditor of passenger accounts, in which capacity he served until his retirement. Mr. Estano was an active member of the Accounting division of the Association of American Railroads and has served for some years on its Passenger Sub-Committee.

T. H. Ochiltree, auditor of passenger accounts of the Union Pacific, with headquarters at Omaha, Neb., has retired.

Edwin R. Eckersall has been appointed assistant general attorney on the Chicago, Milwaukee, St. Paul & Pacific, with headquarters in Chicago, a newly-created position. Mr. Eckersall had formerly been associated with a Chicago insurance firm.

Benjamin Arnum, auditor of agencies of the Canadian Pacific, with headquarters at Montreal, Que., has retired under the company's pension rules, after more than 40 years of service. **James S. Hickey**, assistant auditor of agencies at Montreal, has been appointed auditor of agencies to succeed Mr. Arnum.

Arthur B. Hopper, accountant in the disbursements branch of the Canadian National, with headquarters at Montreal, Que., has been appointed auditor of the Central Vermont, with headquarters at St. Albans, Vt., succeeding **C. W. O. Moore**, who has



Arthur B. Hopper

retired on pension after 47 years of service with the Central Vermont. Mr. Hopper was born at Ottawa, Ont., and entered the service of the Canadian National as a stenographer at the Chateau Laurier hotel, Ottawa, in 1913. He was appointed night auditor there in the same year and served as auditor from 1913 to 1915, when he was transferred to Highland Inn, Algonquin Park, Ont., as auditor. Mr. Hopper went to the Fort Garry hotel at Winnipeg, Man., as chief cashier in 1915, leaving in 1916 for military service with the Canadian Expeditionary Forces in France. Upon his return he became traveling accountant of disbursements and in 1919 was promoted to chief clerk of the payroll department in Montreal. In 1923 Mr. Hopper became assistant chief clerk at Toronto, Ont., and later in that year was appointed traveling accountant in the office of the general

comptroller at Montreal. He became special accountant in the general auditor's department at Montreal in 1926, being transferred in the same capacity in 1930 to the office of assistant comptroller of disbursements. He was appointed assistant chief clerk of disbursements at Montreal in 1933 and promoted to accountant in the disbursements' branch at Montreal, in 1936, which position he held until his recent appointment as auditor of the Central Vermont.

Mr. Moore entered the service of the Central Vermont as an office boy on September 15, 1892. On June 1, 1893, he was promoted to clerk in the freight accountants office and June 1, 1911, became assistant chief clerk of freight accounts. On September 1, 1913, he was appointed traveling auditor with system jurisdiction; on May 1, 1919, chief clerk, disbursements; and on January 1, 1934, chief clerk of all divisions of the auditing department. Mr. Moore was appointed acting auditor of the Central Vermont on April 1, 1934, and January 1, 1935, became auditor, the position he held until his retirement.

OPERATING

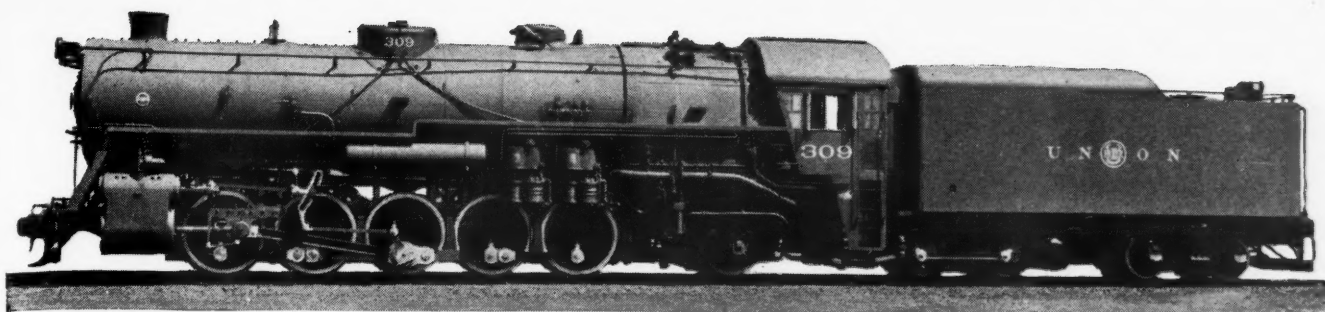
R. O. Rote, chief engineer of the New York Central, Lines West of Buffalo and the Ohio Central lines, has been appointed assistant to the general manager, with headquarters as before at Cleveland.

W. N. Bichler, president of the Gilmore & Pittsburg, with headquarters at Armstead, Mont., has been appointed manager of the Cowlitz, Chehalis & Cascade, with headquarters at Chehalis, Wash., succeeding **M. B. McBride**, manager-auditor, who has resigned.

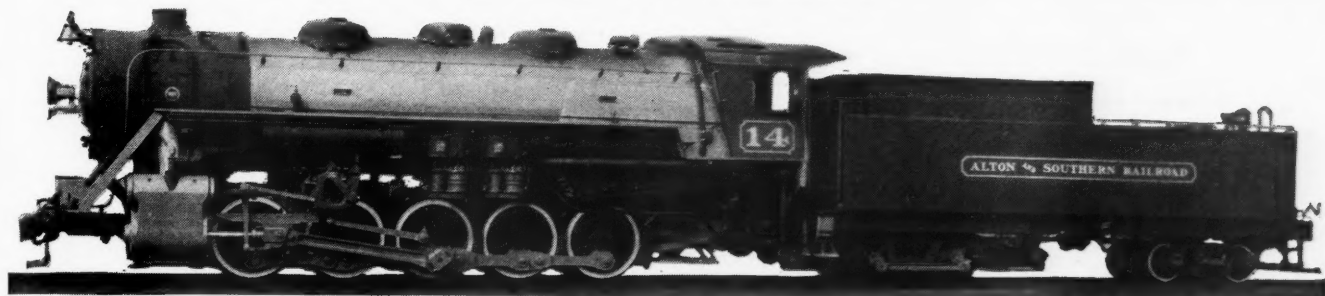
John M. Ryan, division engineer of the Nashville and P. & M. divisions of the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn., has been promoted to assistant to general manager, with the same headquarters, succeeding **R. L. Schmid**, whose promotion to principal assistant engineer, is announced elsewhere in these columns.

C. L. Gray, terminal trainmaster on the Chicago, Burlington & Quincy at Aurora, Ill., has been appointed inspector of transportation, with headquarters at Chicago, a newly created position, and **William P. Simmons**, terminal trainmaster at Lincoln, Neb., has been transferred to Aurora, replacing Mr. Gray. **J. I. Hopkins**, general yardmaster at St. Joseph, Mo., has been promoted to terminal trainmaster at Lincoln, succeeding Mr. Simmons.

James John Sunderland, superintendent of transportation of the Quebec district of the Canadian National at Quebec, Que., whose retirement on September 11 was reported in the *Railway Age* of September 9, was born at St. Catherine's, Que., on September 10, 1874. Mr. Sunderland entered railroad service on March 1, 1890, as roadmaster's clerk with the Quebec & Lake St. John at St. Raymond, Que., and served successively with that company as clerk and telegraph operator, train dispatcher, chief dispatcher, trainmaster and chief dispatcher and acting superintendent.



0-10-2 locomotive with Booster*, Union Railroad

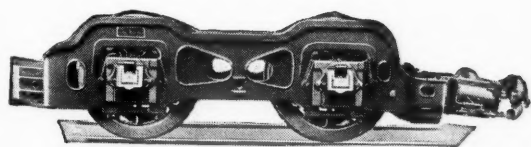


0-10-0 locomotive with Booster, Alton & Southern Railroad



0-10-0 locomotive with Booster, Duluth, Missabe & Northern Railway

"MODERN SHUNTING LOCOMOTIVES IN AMERICA"



*Trademark Registered United States Patent Office



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK
CHICAGO
MONTREAL

LOCOMOTIVES designed and built for shunting service in America differ in most respects from those used in this country, or, indeed, on any of the railways of Europe. This is accounted for by the fact that the conditions to be met are also dissimilar, the extent of the yards and the loads to be handled both being on a much larger scale than in most other countries. The majority of shunting locomotives in the United States are fitted with tenders, whereas tank engines of varying capacities are mainly in use elsewhere for such duties, because in the prevailing circumstances they are better adapted for working in shunting yards by their shorter overall length, adaptability for running in either direction with equal facility, and more restricted overall wheelbase.

Shunting engines in America, on the other hand, are of large size and great power, and are very often equipped with boosters, applied, as a rule, to the tenders. They are, in effect, equal to main-line freight locomotives, and in general have the ten-coupled wheel arrangement with or without additional carrying wheels, these usually being omitted at the front end if not altogether.

Reprinted from The Railway Gazette,
London, England — May 12, 1939

When the Quebec & Lake St. John was absorbed by the Canadian Northern, Mr. Sunderland was appointed assistant superintendent of the Canadian Northern (now Canadian National), which position he held from May, 1908, to May, 1914. He was appointed superintendent of the Canadian Northern in June, 1914, and became superintendent of the Canadian National in December, 1918. Mr. Sunderland was appointed superintendent of transportation in September, 1920, the position he held until his retirement.

TRAFFIC

H. A. Helstrom, commercial agent for the Atlantic Coast Line at Chicago, has been promoted to general agent at that point, a newly created position.

T. H. Ramsey has been appointed New England freight agent of the Reading and the Central of New Jersey, with headquarters at Boston, Mass., succeeding **W. E. Barrows**, deceased.

William P. Thurston has been appointed Eastern coal traffic agent of the Chesapeake & Ohio, with headquarters at Richmond, Va. **R. B. Hubbard**, traveling coal traffic agent at Richmond, has been appointed New England coal traffic agent, with headquarters at Boston, Mass., succeeding **T. V. Bush**, deceased.

ENGINEERING AND SIGNALING

Peter Aagaard, superintendent of buildings of the Illinois Central, with headquarters at Chicago, retired on October 1.

H. B. Reinsagen, assistant chief engineer of the Ohio Central lines of the New York Central, with headquarters at Cleveland, Ohio, retired on October 1.

W. C. Hankison, manager of telegraph of the Panhandle & Santa Fe, with headquarters at Amarillo, Tex., has been appointed also telegraph manager of the Western lines of the Atchison, Topeka & Santa Fe, with the same headquarters, a newly created position.

Frank W. Thompson, division engineer on the Chicago, Rock Island & Pacific, with headquarters at Rock Island, Ill., has been promoted to engineer officer, with headquarters at Chicago, a newly created position, with jurisdiction over all employees in the engineering department, except those reporting to the engineer of bridges.

The jurisdiction of **George H. Harris**, chief engineer of the territory embracing the Canada, Detroit, Michigan and West divisions of the New York Central System, has been extended to include the Erie, Cleveland, Toledo, Western and Ohio Central divisions, formerly under the jurisdiction of **R. O. Rote**, who has been appointed assistant to the general manager of the New York Central, with headquarters as before at Cleveland, Ohio, and the headquarters of Mr. Harris have been transferred from Detroit, Mich., to Chicago. **Frank J. Jerome**, engineer of maintenance of way of the Michigan Central, with headquarters at Detroit, has been ap-

pointed assistant chief engineer, with headquarters at Chicago. **William O. Houston**, division engineer on the Michigan Central, with headquarters at Jackson, Mich., has been appointed district engineer in charge of engineering and maintenance on the New York Central System in the territory embracing the Canada, Detroit, Michigan and West divisions, with headquarters at Detroit, Mich., and **James A. Stocker**, principal assistant engineer on the New York Central, Lines West of Buffalo and the Ohio Central lines, with headquarters at Cleveland, Ohio, has been appointed district engineer in charge of engineering and maintenance on the New York Central System in the territory embracing the Erie, Cleveland, Toledo Western and Ohio Central divisions, with headquarters as before at Cleveland. **Arthur P. Button**, engineer of grade crossings on the New York Central, with headquarters at Cleveland, has been transferred to Chicago, and his jurisdiction has been enlarged to include the Canada, Detroit, Michigan and West divisions. **Foster H. Simpson**, assistant engineer on the New York Central, Lines East of Buffalo, with headquarters at New York, has been appointed assistant district engineer, with headquarters at Detroit, Mich., and **Charles R. Strattman**, supervisor of track on the Michigan Central at Lansing, Mich., has been promoted to division engineer, with headquarters at Jackson, succeeding Mr. Houston.

H. R. Davis, supervisor of track on the Illinois Central at Harrison, Miss., has been promoted to division engineer, with headquarters at Vicksburg, Miss., succeeding **S. C. Jump**, who has been transferred to McComb, Miss. Mr. Jump replaces **J. E. Rogan**, whose promotion to trainmaster of the New Orleans Terminal, with headquarters at New Orleans, La., was announced in the *Railway Age* of September 30.

J. L. Cranwell, division engineer of the Columbus division of the Pennsylvania, with headquarters at Columbus, Ohio, has been transferred to Pittsburgh, Pa., succeeding **J. E. Vandling**, whose promotion to superintendent of the Erie & Ashtabula division, with headquarters at New Castle, Pa., was announced in the *Railway Age* of September 23, and **A. J. Greenough**, supervisor of track, with headquarters at New Brunswick, N. J., has been promoted to division engineer, with headquarters at Columbus, Ohio, replacing Mr. Cranwell.

Robert H. Ford, chief engineer of the Chicago, Rock Island & Pacific, with headquarters at Chicago, retired on September 30, after approximately 47 years railroad service. He was born at St. Albans, Vt., on September 8, 1869, and was educated in Norwich University, Northfield, Vt., graduating in 1892. He entered railroad service in the same year with the Central Vermont, with which road he served for 13 years as a roadmaster and in other capacities on construction and maintenance. In 1906, Mr. Ford left this company to go with the Missouri Pacific as an assistant engineer, later being appointed maintenance

of way inspector. In 1907, he was promoted to principal assistant engineer, and in 1909 he was further advanced to assist-

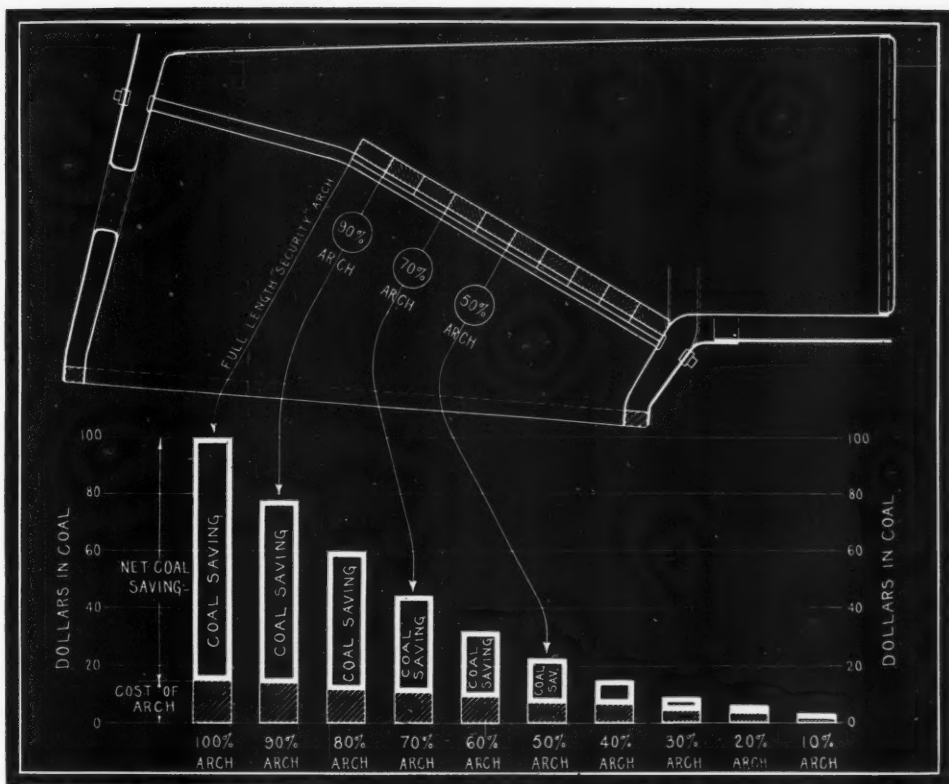


Robert H. Ford

ant to the chief engineer maintenance of way. Resigning from the Missouri Pacific in 1911, Mr. Ford joined the Hodges-Downey Construction Company, Birmingham, Ala., general contractors, as chief engineer. In 1913, he left this company to go with the Rock Island as a special engineer, being appointed engineer track elevation in the following year, in charge especially of the large program of grade separation in Chicago. In 1919, Mr. Ford was promoted to principal assistant engineer, and in 1924, he was further advanced to assistant chief engineer. Mr. Ford was appointed chief engineer of the Rock Island on April 1, 1937, holding that position until his retirement. During his career, Mr. Ford had given much time to the broader aspects of transportation engineering, especially in relation to the effect on the railways of the development of the system of inland waterways in the Mississippi Valley. Mr. Ford has also been active in the affairs of the American Railway Engineering Association, having served as its president and as chairman of the Engineering division of the Association of American Railroads in 1935-36. He has also served as chairman of various committees of the A. R. E. A., including the Committee on Co-operative Relations with Universities and Colleges. Mr. Ford has been a member of the board of trustees of Norwich University for a number of years, and that institution conferred upon him the honorary degree of Doctor of Engineering in 1939.

SPECIAL

R. R. Horner, whose appointment as managing editor of the Norfolk & Western Magazine was reported in the *Railway Age* of September 30, was born at Roanoke, Va., on September 13, 1896. Mr. Horner attended Wofford Fitting School, Spartanburg, S. C.; Davidson College, Davidson, N. C.; and the University of North Carolina. He served with the American Expeditionary Forces during the World War, and was a member of the editorial staff of the Roanoke (Va.) World News, from 1922 to 1924, inclusive, also acting as Cor-



THE EFFECT OF ABBREVIATED ARCHES ON FUEL SAVING

LET THE ARCH HELP YOU SAVE

With the emphasis being placed on saving every railroad dollar, the locomotive Arch becomes increasingly important.

Regardless of the amount of traffic handled, the locomotive Arch saves enough fuel to pay for itself ten times over.

Be sure that every locomotive leaving the roundhouse has its Arch complete with not a single brick nor a single course missing.

In this way, you will get more work for each dollar of fuel expense. Skimping on Arch Brick results in a net loss to the railroad.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

**HARBISON-WALKER
REFRATORIES CO.**
Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**
60 EAST 42nd STREET, NEW YORK, N. Y.
*Locomotive Combustion
Specialists*

respondent for the United Press and engaging in free lance work for several metropolitan newspapers. Mr. Horner entered the service of the Norfolk & West-



R. R. Horner

ern in November, 1924, as advertising manager of the Norfolk & Western Magazine. With the establishment of the railroad's Advertising department in 1928, he was appointed publicity assistant, in which capacity he served until his recent appointment as managing editor of the Norfolk & Western Magazine in general charge of the magazine, advertising and publicity departments, effective October 1.

MECHANICAL

H. C. Fisher, foreman of the passenger car shop of the Norfolk & Western, has been appointed superintendent of the car department, with headquarters at Roanoke, Va., succeeding **S. P. Seifert**, who retired on October 1, after completing 48 years of active service with the company.

Charles J. Scudder, chief of motive power of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., has been relieved of the duties of that position at his own request, effective October 1, and has been appointed consulting engineer of motive power. **Edward E.**



Charles J. Scudder

Root, assistant chief of motive power, has been promoted to chief of motive power, to succeed Mr. Scudder. A photograph of Mr. Root and a biographical sketch of his railway career, were published in the *Rail-*

way Age of June 10, in connection with his appointment as assistant chief of motive power.

Mr. Scudder was born at Saginaw, Mich., on September 21, 1873, and entered railway service in 1888 as a machinist apprentice on the Flint & Pere Marquette (Pere Marquette). In 1898 he became machinist on the Detroit, Grand Rapids & Western (Pere Marquette) at Ionia, Mich., and in 1906 became master mechanic on the Cincinnati, Hamilton & Dayton (Baltimore & Ohio) at Cincinnati, Ohio. Mr. Scudder was appointed general foreman, Pere Marquette, at Chicago, in 1908; superintendent shops at Saginaw, Mich., in 1909; and master mechanic there in 1910. In 1911 he became a locomotive inspector of the Interstate Commerce Commission and in 1917 was appointed supervisor of equipment, United States Railroad Administration. Mr. Scudder was appointed superintendent of shops for the Delaware, Lackawanna & Western at Scranton, Pa., in 1919 and became superintendent motive power and equipment at Scranton in 1923. He has been chief of motive power since 1936.

Jose Morales Sanchez, superintendent of motive power and machinery of the Southern Pacific of Mexico, with headquarters at Empalme, Son., Mex., has resigned to return to his former position of assistant general superintendent of motive power and machinery of the National Railways of Mexico, with headquarters at Mexico, D. F. **Crescencio Neaves** has been appointed master car builder of the National Railways of Mexico, succeeding **Pedro Contreras**, who has retired.

J. P. Becker, master mechanic on the Chicago Great Western at Oelwein, Iowa, has been appointed assistant to superintendent of motive power, with headquarters at Oelwein, a newly created position. Mr. Becker will have jurisdiction over matters pertaining to general locomotive inspection, design, standards and tests.

OBITUARY

C. J. Harrington, division engineer on the Illinois Central, with headquarters at Champaign, Ill., died suddenly at that point on September 29.

James M. Shea, former division superintendent of the Norfolk Southern, at New Bern, N. C., died on September 27 at Norfolk, Va., after an illness of several weeks. He was 80 years old.

J. A. Sams, assistant general freight agent on the Nashville, Chattanooga & St. Louis at Atlanta, Ga., died at the age of 83 in that city on September 12. Mr. Sams had had 60 years' service with the N. C. & St. L.

Peter H. Woodward, special representative of the Pennsylvania, died of a heart attack at his home in Brightwaters, Long Island, New York, on September 29, at the age of 66. Mr. Woodward was born at Allegan, Mich., on November 28, 1873, and was educated in the public and commercial schools of Alma and St. Louis, Mich. He entered railroad service with

the Flint & Pere Marquette (Pere Marquette) at Saginaw, Mich., as a stenographer and clerk in the car record office on November 1, 1890. A year later he was transferred to the office of the general superintendent of that road, acting in various clerical capacities until March 20, 1897. A few months later Mr. Woodward became clerk and chief clerk to the general superintendent of the Long Island and on May 1, 1903, was appointed superintendent of the Long Island Express, in charge of express, mail and baggage of the Long Island. On February 1, 1905, Mr. Woodward was appointed secretary to the president of the Long Island and on March 1, 1920, was appointed general passenger agent of that road. He was appointed general passenger agent of the Pennsylvania at New York on November 16, 1928, and on June 1, 1932, was appointed special representative, the position he held until his death.

John Vipond Davies, consulting civil engineer, who was chief engineer in charge of construction and operation of the Hudson & Manhattan and concerned with the construction of many other large railroad projects, died suddenly at his home in Flushing, N. Y., on October 4, at the age of 76.

Charles W. Johns, chief engineer of the Chesapeake & Ohio at Richmond, Va.,



Charles W. Johns

whose death on September 16 was reported in the *Railway Age* of September 23, was born on December 28, 1875, at Farmville, Va. He entered railway service on September 1, 1899, as instrumentman on the Chesapeake & Ohio and then served as assistant engineer on construction. In August, 1903, he became assistant engineer maintenance department at Hinton, W. Va., and in December, 1904, was appointed assistant division engineer there. Mr. Johns became division engineer at Hinton in May, 1906, and two months later was appointed assistant engineer maintenance of way, with the same headquarters. From May, 1910, until February, 1914, Mr. Johns served as engineer maintenance of way at Huntington, W. Va., and from the latter date until August, 1920, as engineer, branch lines at Richmond, Va. In August, 1920, he was appointed engineer of construction and became chief engineer in January, 1923, the position he held until his death.

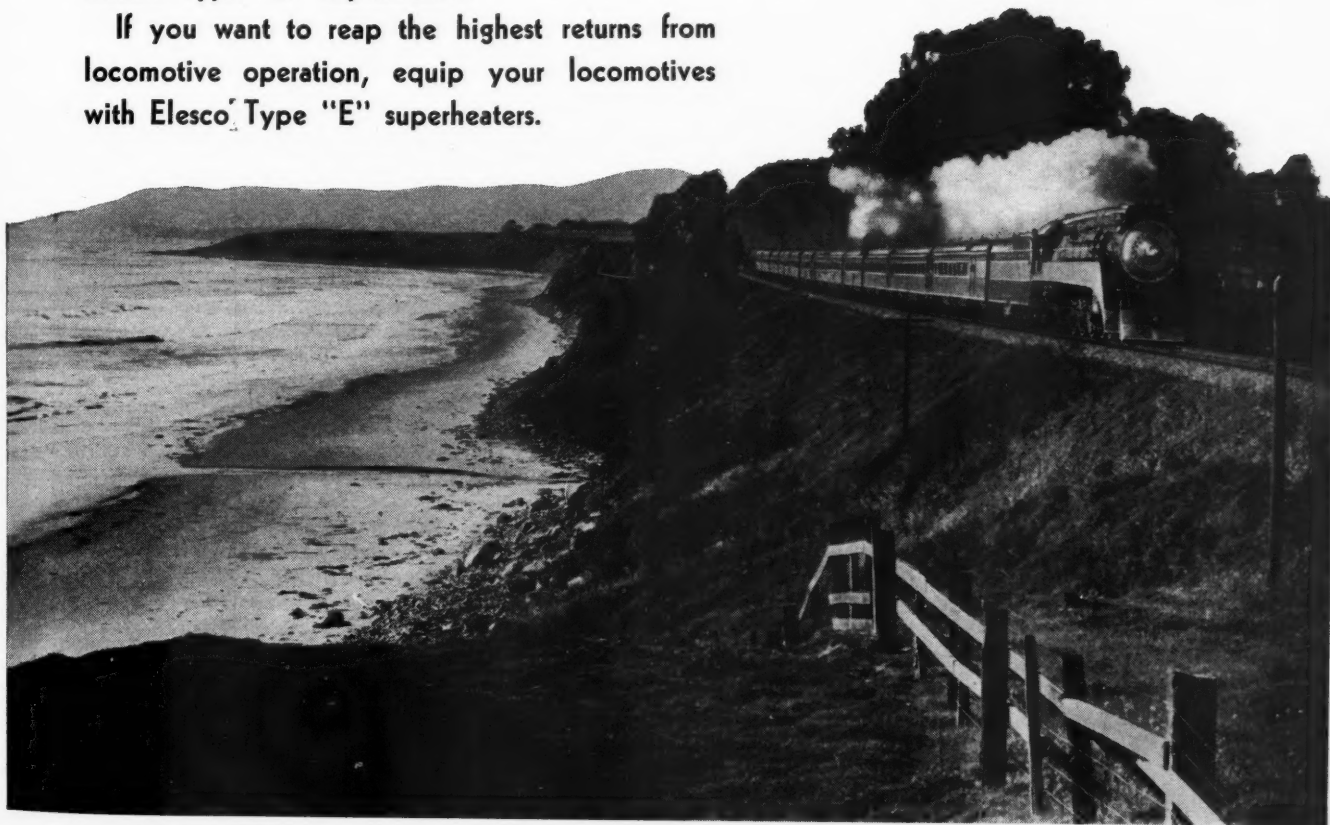
Table of Revenues and Expenses begins on next left-hand page

"As Ye Sow So Shall Ye Reap"

This old proverb still applies and especially so to locomotive operation.

The efficiency of locomotive operation is dependent to a large extent as to what goes into the locomotive in the nature of boiler and related equipment. High sustained boiler capacity with highest boiler efficiency requires, among other things, a boiler with the largest evaporating and superheating surface within clearance limits. This is possible only with a boiler equipped with an Elesco Type "E" superheater.

If you want to reap the highest returns from locomotive operation, equip your locomotives with Elesco Type "E" superheaters.



A-1361

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, INC.

60 East 42nd Street, NEW YORK

122 S. Michigan Avenue, CHICAGO

Canada: THE SUPERHEATER COMPANY, LTD., MONTREAL

Superheaters • Exhaust Steam Injectors • Feedwater Heaters • American Throttles • Pyrometers • Steam Dryers

October 7, 1939

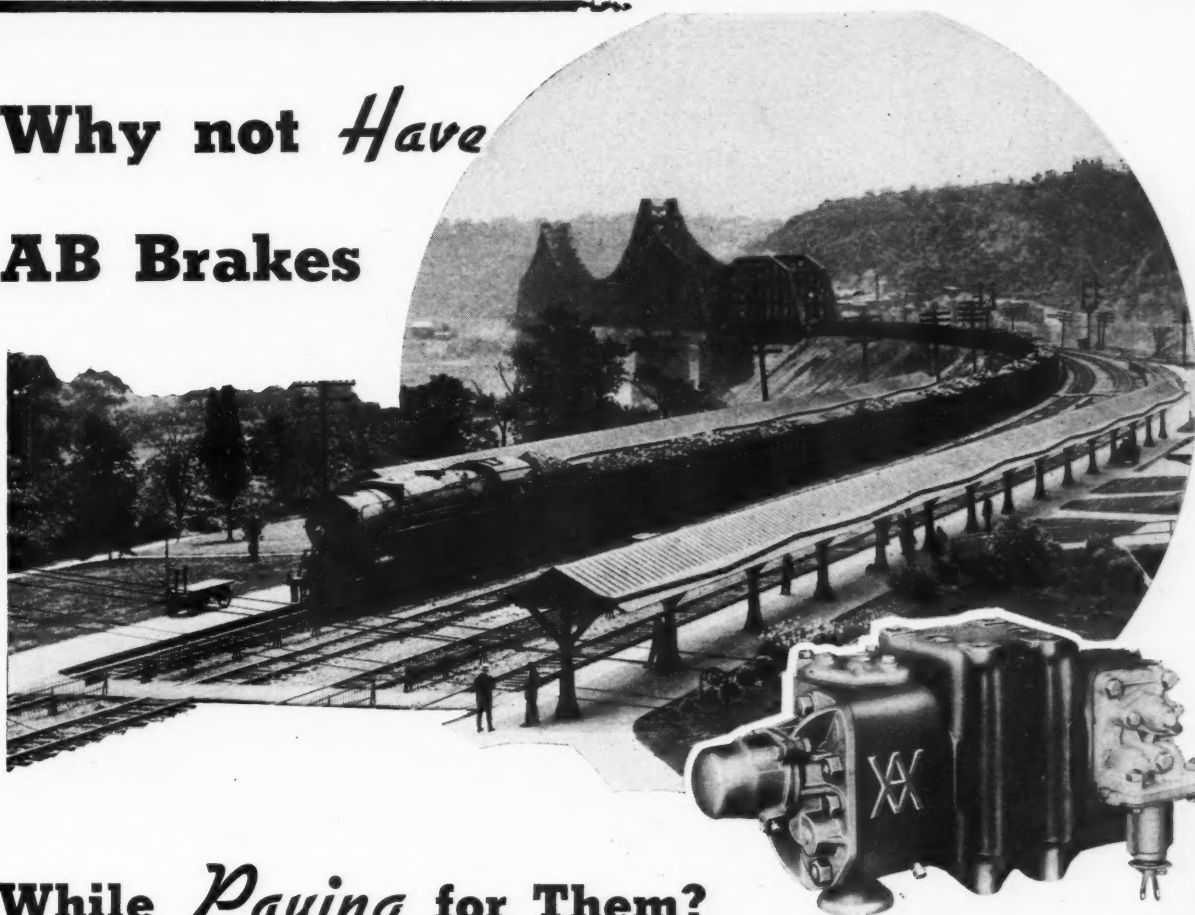
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1939

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Net railway operating income	
		Freight	Passenger	(inc. misc.)	Way and structures	Equipment	Traffic			1939	1938
Akron, Canton & Youngstown	171	\$163,171	\$49	\$170,232	\$25,914	\$12,132	\$13,380	65.5	\$58,760	\$45,705	\$28,537
Alton	959	1,051,830	227,212	1,279,042	105,956	121,417	111,126	71.3	365,561	256,707	\$11,811
Atchison, Topeka & Santa Fe System	13,447	10,417,664	2,115,539	13,776,826	2,053,372	2,710,217	473,119	75.4	3,388,720	1,960,137	1,982,951
Atlanta & West Point	93	81,274,922	12,358,396	102,370,660	15,215,122	22,802,760	37,496,687	80.1	20,320,793	10,473,573	10,086,108
Atlanta, Birmingham & Coast	639	2,010,843	166,870	2,340,854	344,406	410,169	191,595	88.8	16,439	6,637	9,625,943
Baltimore & Ohio	6,389	12,250,722	1,063,878	14,178,810	452,527	788,345	142,742	88.3	13,489	56,084	7,637
Boston & Maine	1937	2,608,133	722,768	3,815,247	472,345	457,639	71,473	89.8	13,489	82	4,748
Burlington, Rock Island	255	68,199	21,853	97,992	15,598	18,105	4,964	76.5	7,557,919	4,237,919	2,475,194
Camden & Delaware	234	1,335,907	119,142	1,556,430	286,945	306,544	80,117	80.1	10,100	10,100	24,347
Central of Georgia	1,871	8,070,206	803,405	10,036,065	1,356,134	2,154,597	417,915	86.4	12,724	134,217	68,820
Central of New Jersey	711	16,439,313	2,963,926	20,897,494	2,222,384	4,056,906	379,297	88.6	1,196,530	901,035	713,387
Chesapeake & Ohio	3,110	10,747,900	266,954	11,433,220	973,485	2,038,337	207,664	73.2	1,955,275	5,515,877	3,720,087
Chicago & Eastern Illinois	927	9,299,528	1,194,487	10,494,015	1,356,134	2,154,597	417,915	94.5	5,520	2,712	9,099
Chicago & Illinois Midland	131	294,618	809	321,064	53,287	63,482	19,450	95.7	33,301	3,515	76,691
Chicago & North Western	8,359	40,899,189	7,734,443	54,404,395	9,377,215	11,930,695	1,625,202	82.6	31,301	3,515	76,691
Chicago, Burlington & Quincy	9,034	6,330,400	1,045,161	8,221,964	1,489,468	1,339,800	237,886	72.5	312,539	90,704	572,539
Chicago, Great Western	1,505	1,431,651	38,080	1,578,116	202,575	242,894	57,372	77.9	312,539	90,704	572,539
Chicago, Indianapolis & Louisville	549	688,206	40,706	801,130	88,946	187,933	29,011	86.8	312,539	90,704	572,539

Continued on next left-hand page

Why not *Have* **AB Brakes**



While *Paying* for Them?

AB Brakes cost less than do the results that may follow continued use of a brake under conditions more severe and exacting than those for which it was originally intended . . . Whereas AB Brakes were primarily developed to meet the established requirements for safe handling of modern freight trains, they provide such efficient control, and function with such high integrity over long periods of time, that operating and maintenance costs are thereby greatly reduced. These savings will soon balance the initial cost, and thereafter materially enhance net profits. » » » » » »

WESTINGHOUSE AIR BRAKE COMPANY

General Office and Works: WILMERDING, PENNA.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1939—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues—Total			Maintenance of—			Operating expenses—			Operating ratio	Net from railway operation	Net railway income	
		Freight	Passenger	(inc. misc.)	Way and structures	Equip-ment	Traffic	Trans-portion	Total	1939			1938	
Chicago, Milwaukee, St. Paul & Pacific	10,890	\$8,193,053	\$789,412	\$9,972,698	\$1,999,074	\$1,707,560	\$241,339	\$3,446,106	\$7,757,790	77.8	\$2,214,908	\$1,496,908	\$1,028,738	\$1,180,442
Chicago, Rock Island & Pacific	10,935	55,053,878	5,221,490	60,275,368	12,508,804	13,159,082	1,846,901	26,273,426	56,682,245	84.9	10,113,840	4,477,840	1,242,125	1,102,628
Chicago, Rock Island & Pacific	7,249	38,921,964	4,827,675	43,749,639	7,456,523	9,379,924	1,856,092	16,697,065	39,520,971	83.2	8,000,170	4,291,940	1,902,313	70,006
Chicago, Rock Island & Gulf	627	298,970	31,925	330,895	62,435	49,498	20,875	127,177	279,691	67.5	134,683	109,771	21,210	21,420
Chicago, St. Paul, Minneapolis & Omaha	1,629	2,726,369	218,787	2,945,156	608,023	290,449	168,103	1,094,631	2,359,214	64.7	1,289,175	1,090,380	356,662	143,353
Clinchfield Railroad	308	601,457	4,080	605,537	342,344	791,180	151,900	691,338	1,341,080	74.6	435,880	333,449	202,875	204,882
Colorado & Southern	787	502,934	25,592	528,526	4,477,283	210,707	38,370	5,228,827	9,914,471	90.2	1,083,205	182,895	647,487	342,392
Fort Worth & Denver City	902	410,858	63,762	474,620	45,228	94,978	18,982	108,620	282,610	46.3	328,255	278,159	295,223	196,533
Columbus & Greenville	168	96,799	7,301	104,100	43,063	654,410	148,118	1,387,942	2,891,319	73.7	1,032,399	737,545	426,120	633,404
Delaware & Hudson	847	1,798,584	224,329	2,022,913	1,648,509	2,779,616	345,510	5,828,284	11,263,444	71.2	4,564,900	3,276,016	3,046,836	1,448,493
Delaware, Lackawanna & Western	996	2,789,225	549,462	3,338,687	411,315	1,077,727	1,077,727	1,801,321	3,208,530	84.1	591,999	181,999	149,865	4,052
Denver & Rio Grande Western	2,555	1,961,722	190,325	2,152,047	2,260,867	6,080,890	901,653	14,849,288	25,210,300	79.2	6,635,297	3,179,297	2,665,976	937,876
Denver & Salt Lake	232	1,114,977	47,275	1,162,252	262,907	337,088	20,702	422,304	1,117,864	90.6	115,414	102,292	267,698	309,779
Detroit & Mackinac	242	65,662	2,750	68,412	13,361	15,437	920	24,693	54,936	72.4	20,969	17,511	12,435	12,329
Detroit & Toledo Shore Line	50	228,175	21,382	249,557	89,311	110,410	7,508	193,269	422,765	82.1	92,325	61,968	28,841	34,292
Detroit, Toledo & Iron Range	472	416,759	1,549	418,308	176,703	153,302	98,813	368,346	750,054	90.3	80,356	107,268	23,046	100,276
Duluth, Missabe & Iron Range	540	2,444,575	206,4	2,651,019	2,838,647	225,524	3,827	514,303	975,468	71.7	2,530,497	1,554,628	1,232,300	5,393
Duluth, Winnipeg & Pacific	175	103,683	2,341	106,024	25,239	23,002	2,245	44,809	99,434	90.7	10,143	11,104	9,869	28,945
Elgin, Joliet & Eastern	390	1,099,390	11,442	1,110,832	1,360,196	231,557	14,149	1,037,366	1,983,097	75.6	2,530,497	1,554,628	1,232,300	5,393
Erie	2,290	5,790,246	446,828	6,237,074	761,130	1,308,998	177,721	2,543,400	5,043,530	74.7	1,704,571	1,143,270	820,020	440,450
New York, Susquehanna & Western	146	1,698,885	18,576	1,717,461	4,818,073	10,172,082	1,383,874	19,616,749	38,018,084	75.8	12,115,121	7,580,407	5,588,412	370,490
Florida East Coast	685	3,945,608	1,938,107	5,883,715	861,411	1,161,855	187,998	2,147,669	4,800,309	73.1	1,762,435	1,176,469	702,829	1,085,140
Georgia Railroad	329	283,191	14,122	297,313	33,837	28,891	27,104	796,722	1,328,299	88.7	642,443	388,590	104,407	28,569
Georgia & Florida	408	175,747	2,650	178,397	118,251	148,160	20,656	160,762	483,210	125.5	98,233	156,094	182,756	182,868
Grand Trunk Western	1,030	11,904,744	699,519	12,604,263	2,638,880	2,922,473	335,430	5,967,136	11,612,540	85.6	1,961,295	975,670	390,894	1,364,911
Canadian National Lines in New England	172	110,722	15,565	126,287	27,156	15,746	9,278	41,853	99,184	54.6	82,416	74,178	63,927	56,193
Great Northern	8,072	47,913,433	3,034,615	50,948,048	10,338,568	1,559,072	18,339,453	39,678,958	71.6	15,771,481	9,438,385	8,312,806	4,382,467	24,866
Green Bay & Western	234	134,664	559	135,223	31,129	17,093	5,502	47,375	105,257	74.3	36,251	21,888	12,865	97,428

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1939—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Net railway operating income	
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equip-ment	Traffic			Operating income	1939
Gulf & Ship Island	259	\$65,220	\$4,598	\$79,965	\$24,475	\$12,880	\$2,631	112.5	—\$10,022	—\$26,910	—\$34,164
Gulf, Mobile & Northern	824	4,035,566	152,684	4,374,296	585,605	666,560	321,996	69.5	1,336,184	957,684	669,436
Illinois Central	4,949	6,085,048	751,920	7,350,496	833,819	1,680,812	192,008	79.2	1,531,125	845,563	823,539
Yazoo & Mississippi Valley	1,619	1,015,405	70,065	1,141,290	127,167	186,976	30,559	75.8	276,203	134,086	42,361
Illinois Central System	6,568	7,100,453	821,985	8,491,786	960,986	1,867,788	222,567	77.7	1,807,327	977,593	873,813
Illinois Terminal	487	2,876,805	468,787	3,675,792	410,992	565,208	130,677	69.34	1,127,006	788,361	644,889
Kansas City Southern	879	946,728	27,545	1,091,172	99,595	173,521	53,075	64.5	387,727	288,727	238,019
Kansas, Oklahoma & Gulf	327	7,342,906	162,369	8,431,783	746,272	1,215,201	418,322	63.7	3,067,724	2,275,724	1,914,619
Lake Superior & Ishpeming	156	382,399	71	468,226	27,204	23,472	636	25.1	350,811	276,218	276,176
Lehigh & Hudson River	96	1,017,733	681	1,023,812	106,893	167,207	28,283	69.2	315,566	197,859	108,917
Lehigh Valley	1,283	25,485,185	1,453,768	28,685,623	1,905,107	5,330,533	874,444	74.8	7,223,464	5,114,343	3,590,551
Louisiana & Arkansas	847	589,382	6,895	620,597	95,047	87,678	33,320	65.0	217,046	170,700	133,676
Louisville & Nashville	4,907	4,402,964	60,581	4,467,767	705,156	669,097	283,531	68.2	1,480,380	1,110,230	828,568
Maine Central	990	682,171	124,491	902,792	166,772	111,962	12,506	76.1	215,415	152,059	126,821
Midland Valley	352	866,124	27	878,910	105,015	74,959	20,601	54.8	397,585	303,031	250,979
Minneapolis & St. Louis	1,512	849,245	8,470	895,312	172,458	130,217	45,069	73.3	238,602	191,419	146,522
Minneapolis, St. Paul & Sault Ste. Marie	4,289	2,590,309	144,829	2,975,290	349,886	378,457	63,705	82.2	1,010,677	656,162	347,641
Duluth, South Shore & Atlantic	550	219,377	9,347	253,406	47,123	33,614	5,633	71.0	73,537	58,724	54,283
Spokane International	152	467,805	7,326	525,081	120,302	56,904	16,009	78.3	114,088	82,612	60,062
Mississippi Central	150	70,748	2,474	75,743	26,377	10,372	7,190	89.9	7,664	2,740	—3,262
Missouri & Arkansas	365	80,908	1,641	88,500	21,545	10,459	5,999	93.8	33,006	—5,368	—46,460
Missouri-Illinois	193	212,443	452	214,664	28,862	16,022	3,272	88.4	110,776	94,780	72,756
Missouri-Kansas-Texas Lines	3,294	1,892,600	176,340	2,288,767	393,170	407,338	112,245	84.0	365,268	526,164	377,882
Missouri Pacific	7,150	5,626,591	478,237	6,702,292	1,235,958	1,358,000	235,048	82.5	1,176,048	669,404	321,550
Gulf Coast Lines	1,759	9,523,363	302,502	10,332,478	1,553,368	1,576,844	359,793	66.72	3,438,140	2,850,454	1,986,436
International Great Northern	1,155	708,320	90,118	918,281	153,144	178,862	30,475	86.9	120,586	63,159	—21,787

Continued on second left-hand page



First



Weight on Drivers	270,000 pounds
Weight of Engine	483,000 pounds
Cylinders	25 x 32 inches
Diameter of Drivers	80 inches
Boiler Pressure	300 pounds
Maximum Tractive Power	63,800 pounds
Tender Capacity	Water 23,500 gals. — Fuel 25 tons

Twenty - NOW **FIFTEEN MORE** **FOR THE** **UNION PACIFIC**

FIFTEEN 4-8-4 type high speed passenger locomotives are now being delivered to the Union Pacific by the American Locomotive Company. The design is a further development of the twenty 4-8-4 type locomotives which were built by the American Locomotive Company for the Union Pacific in 1937. It was one of these locomotives that attained the highest speed in the A.A.R. tests, when it hauled a 16 car, 1000 ton train westbound to Grand Island with a maximum speed of 89 m.p.h., and eastbound on a slightly descending grade at 102 m.p.h.



AMERICAN LOCOMOTIVE COMPANY

30 CHURCH STREET - NEW YORK - N.Y.



RAILWAY AGE

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1939—CONTINUED

Name of road	Av. mileage operated during period	MONTH OF AUGUST				EIGHT MONTHS OF CALENDAR YEAR 1939				Operating ratio	Net from railway operation	Net railway operating income	
		Freight	Passenger	(inc. misc.)	Operating revenues—Total	Maintenance of way and structures	Equip-ment	Traffic	Trans-portion			Operating income	1939
Mobile & Ohio	Aug. 8 mos.	1,180	\$884,016	\$34,554	\$956,913	\$140,789	\$191,085	\$44,124	\$335,947	79.3	\$198,213	\$134,233	\$75,109
Monongahela	Aug. 8 mos.	1,180	7,029,659	204,689	7,590,639	1,183,204	1,487,462	344,374	2,736,821	80.5	1,478,883	975,229	503,654
Montour	Aug. 8 mos.	1,172	387,044	746	3,389,538	34,369	204,296	3,888	528,969	36.2	2,487,713	215,147	566,639
Monongahela	Aug. 8 mos.	1,111	2,327,096	4,855	2,346,067	242,501	204,296	3,888	528,969	42.7	1,344,995	1,084,009	260,986
Montour	Aug. 8 mos.	51	225,954	227,905	227,905	14,639	46,415	910	42,964	48.8	116,744	80,478	36,266
Nashville, Chattanooga & St. Louis	Aug. 8 mos.	55	1,160,587	79,649	1,240,236	173,038	313,246	7,838	269,666	62.3	444,785	292,009	152,776
Montour	Aug. 8 mos.	1,111	7,923,114	727,393	9,689,923	1,219,843	1,58,528	516,551	3,718,710	79.3	2,529,976	1,670,047	859,929
Nashville, Chattanooga & St. Louis	Aug. 8 mos.	165	41,277	764	46,793	8,131	4,110	1,181	9,587	59.4	18,998	103,329	84,331
Nevada Northern	Aug. 8 mos.	11,039	19,328,945	5,663,767	28,364,196	3,214,235	5,418,750	4,549,545	82,352,024	52.8	196,584	4,688,604	4,492,020
New York Central	Aug. 8 mos.	11,042	145,739,698	40,885,470	211,453,080	23,041,890	44,162,037	4,549,545	82,352,024	77.6	47,462,985	24,279,574	23,183,411
Pittsburgh & Lake Erie	Aug. 8 mos.	233	1,667,037	39,041	1,757,428	192,928	661,924	27,073	483,277	81.9	318,065	137,718	180,347
Pittsburgh & Lake Erie	Aug. 8 mos.	233	9,992,971	313,588	10,674,534	1,207,752	4,067,198	218,560	3,677,881	91.8	1,158,649	936,407	222,242
New York, Chicago & St. Louis	Aug. 8 mos.	1,704	3,342,049	76,340	3,541,600	390,712	4,067,198	123,466	1,201,567	70.2	7,840,947	6,175,644	1,665,303
New York, Chicago & St. Louis	Aug. 8 mos.	1,704	24,851,922	571,143	26,299,659	2,872,691	4,103,612	966,061	9,574,882	79.2	12,415,068	8,265,668	4,149,394
Pittsburgh & Lake Erie	Aug. 8 mos.	1,868	3,725,891	2,414,644	6,819,388	1,097,407	1,217,516	103,675	2,594,390	80.4	1,421,303	891,303	530,000
New York, Chicago & St. Louis	Aug. 8 mos.	1,875	29,838,690	17,779,878	52,991,926	7,278,740	9,126,807	901,946	20,404,110	87.6	487,736	3,080,814	2,593,078
New York, Chicago & St. Louis	Aug. 8 mos.	21	1,666,663	1,650,868	208,775	34,482	79,595	.....	248,227	51.4	35,803	15,502,262	15,466,459
New York, Chicago & St. Louis	Aug. 8 mos.	21	1,569,919	1,650,868	208,775	34,482	79,595	.....	248,227	51.4	35,803	15,502,262	15,466,459
New York, Chicago & St. Louis	Aug. 8 mos.	576	344,374	86,592	473,033	64,570	88,767	15,661	253,506	92.4	487,736	3,080,814	2,593,078
New York, Chicago & St. Louis	Aug. 8 mos.	576	3,693,530	265,543	4,313,196	468,669	1,642,239	141,139	1,760,095	80.8	580,313	1,350,559	770,245
New York, Chicago & St. Louis	Aug. 8 mos.	2,191	8,488,648	183,793	8,889,470	839,230	1,642,239	1,110,120	12,948,564	87.6	21,598,401	14,085,519	7,512,882
New York, Chicago & St. Louis	Aug. 8 mos.	2,191	51,752,438	1,221,870	54,635,728	5,747,525	11,715,572	1,110,120	12,948,564	87.6	21,598,401	14,085,519	7,512,882
Norfolk & Western	Aug. 8 mos.	805	356,995	5,073	375,490	73,405	51,972	25,577	136,991	80.4	1,119,255	2,437,478	1,318,223
Norfolk & Western	Aug. 8 mos.	805	2,867,185	28,401	3,017,791	578,239	423,720	196,468	1,119,255	80.8	1,119,255	2,437,478	1,318,223
Norfolk & Western	Aug. 8 mos.	6,720	5,556,982	367,336	6,441,265	928,538	1,207,240	168,226	2,077,649	84.7	6,091,540	1,582,848	4,508,692
Norfolk & Western	Aug. 8 mos.	6,721	33,645,098	2,544,652	39,753,265	6,279,689	8,664,168	1,390,916	15,059,444	80.4	1,119,255	2,437,478	1,318,223
Norfolk & Western	Aug. 8 mos.	352	274,155	60,327	364,399	56,336	52,489	2,653	170,372	80.4	1,119,255	2,437,478	1,318,223
Norfolk & Western	Aug. 8 mos.	352	1,522,784	431,722	2,174,528	450,910	392,001	27,304	1,226,491	80.4	1,119,255	2,437,478	1,318,223
Norfolk & Western	Aug. 8 mos.	132	27,135	2,398	29,826	1,536	10,751	1,0751	84,835	80.4	1,119,255	2,437,478	1,318,223
Norfolk & Western	Aug. 8 mos.	132	233,786	2,398	251,127	60,291	10,751	1,0751	84,835	80.4	1,119,255	2,437,478	1,318,223
Northwestern Pacific	Aug. 8 mos.	10,289	26,628,936	6,341,334	36,181,827	3,512,755	7,069,087	751,763	12,337,005	68.9	11,242,917	7,561,415	3,681,502
Oklahoma City-Ada-Atoka	Aug. 8 mos.	10,289	189,576,549	46,635,728	260,181,211	26,971,108	52,274,886	5,575,287	93,836,111	73.2	69,791,330	44,071,293	25,718,037
Pennsylvania	Aug. 8 mos.	383	4,389,892	11,944,525	17,105,820	2,051,106	326,945	94,831	8,018,225	65.1	4,247,507	1,697,134	2,550,373
Pennsylvania	Aug. 8 mos.	383	4,389,892	11,944,525	17,105,820	2,051,106	326,945	94,831	8,018,225	65.1	4,247,507	1,697,134	2,550,373
Long Island	Aug. 8 mos.	412	308,320	505,208	841,856	80,844	77,764	7,339	376,071	66.5	282,239	154,777	127,462
Pennsylvania-Reading Seashore Lines	Aug. 8 mos.	412	2,003,695	1,696,260	3,866,014	635,960	620,967	58,283	2,403,243	82.7	17,244	302,993	154,777
Pennsylvania-Reading Seashore Lines	Aug. 8 mos.	2,115	2,144,664	11,3764	2,516,425	205,106	326,945	94,831	8,018,225	82.7	3,179,138	1,920,588	1,258,550
Pennsylvania-Reading Seashore Lines	Aug. 8 mos.	2,115	16,642,034	664,827	18,382,060	2,543,322	4,104,275	509,768	7,268,407	82.7	3,179,138	1,920,588	1,258,550
Pere Marquette	Aug. 8 mos.	101	53,166	.....	53,561	10,848	127,605	14,995	16,512	82.8	9,201	6,511	2,690
Pittsburgh & Shawmut	Aug. 8 mos.	101	341,862	.....	344,732	321,876	42,515	67,945	918,761	82.8	9,201	6,511	2,690
Pittsburgh & Shawmut	Aug. 8 mos.	136	306,650	.....	321,876	42,515	67,945	918,761	918,761	82.8	9,201	6,511	2,690
Pittsburgh & Shawmut	Aug. 8 mos.	136	1,930,070	.....	2,057,454	268,389	443,669	509,768	7,268,407	82.7	562,026	379,482	182,544
Pittsburgh & Shawmut	Aug. 8 mos.	190	575,946	.....	581,191	107,782	432,939	7,522	1,765,791	70.5	24,227	19,358	4,869
Pittsburgh & Shawmut	Aug. 8 mos.	1,450	4,104,105	241,002	4,545,107	432,939	432,939	7,522	1,765,791	70.5	24,227	19,358	4,869
Pittsburgh & Shawmut	Aug. 8 mos.	1,450	31,331,842	2,115,311	35,027,696	2,891,803	6,426,299	567,032	14,337,617	72.5	96,408	54,982	41,426
Pittsburgh & Shawmut	Aug. 8 mos.	118	297,083	172,639	555,961	64,797	127,140	9,683	222,443	82.7	1,473,948	1,014,647	459,291
Pittsburgh & Shawmut	Aug. 8 mos.	118	3,137,362	1,777,838	5,779,184	594,445	1,088,596	76,347	2,179,690	83.6	49,340	29,717	19,623
Pittsburgh & Shawmut	Aug. 8 mos.	407	189,277	40,261	300,521	50,234	49,691	10,180	1,131,113	85.2	105,749	49,300	56,449
Pittsburgh & Shawmut	Aug. 8 mos.	407	1,490,249	226,765	2,196,670	301,821	443,288	81,894	1,179,516	84.8	585,758	254,291	331,467
Richmond, Fredericksburg & Potomac	Aug. 8 mos.	4,824	3,255,456	296,904	3,855,490	607,440	948,363	117,763	1,420,737	87.2	3,703,954	1,119,136	2,594,818
Richmond, Fredericksburg & Potomac	Aug. 8 mos.	4,836	24,352,770	2,142,001	28,999,943	4,583,096	7,112,564	943,067	11,215,772	87.2	3,703,954	1,119,136	2,594,818
St. Louis-San Francisco	Aug. 8 mos.	4,836	24,352,770	2,142,001	28,999,943	4,583,096	7,112,564	943,067	11,215,772	87.2	3,703,954	1,119,136	2,594,818

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1939—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Net railway operating income	
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Traffic	Trans- portation			1939	1938
St. Louis, San Francisco & Texas	267	\$117,467	\$866	\$124,725	\$25,051	\$7,614	\$52,118	86.2	\$17,257	\$8,575	\$14,312
St. Louis, San Francisco & Texas	267	\$1,050,290	4,385	1,054,675	193,718	64,147	425,111	77.5	248,153	179,803	45,592
St. Louis Southwestern Lines	1,690	1,356,106	32,833	1,388,939	1,464,206	80,023	475,479	88.6	167,413	51,636	114,954
St. Louis Southwestern Lines	1,695	11,544,675	204,907	12,280,953	2,499,668	658,628	4,070,810	82.0	2,214,676	1,324,597	802,182
Seaboard Air Line	4,317	2,358,456	387,974	3,028,010	575,995	154,977	1,233,208	95.1	147,189	—67,881	—115,372
Seaboard Air Line	4,317	21,774,437	4,429,638	28,897,991	4,304,624	1,339,333	10,916,893	83.5	4,757,421	2,437,421	755,217
Southern Railway	6,533	6,907,386	88,367	7,350,691	1,731,555	161,393	2,815,669	69.2	2,566,272	1,900,003	1,408,820
Southern Railway	6,576	51,209,596	5,772,313	62,247,258	7,909,627	1,247,336	21,977,707	71.3	17,855,017	12,677,355	6,039,846
Alabama Great Southern	315	547,973	53,891	637,156	86,895	14,366	177,777	68.8	198,875	130,949	116,436
Alabama Great Southern	315	4,169,013	371,206	4,862,161	685,093	103,462	1,446,580	70.1	1,456,043	927,348	690,988
Cincinnati, New Orleans & Texas Pacific	337	1,189,979	88,367	1,350,691	173,155	29,618	351,696	65.6	465,052	310,913	347,612
Cincinnati, New Orleans & Texas Pacific	337	10,069,402	741,092	11,472,816	1,430,435	232,049	2,948,688	62.8	4,271,533	3,089,195	2,303,500
Georgia, Southern & Florida	398	115,095	25,896	158,803	33,130	17,631	79,259	100.8	1,256	—17,406	—6,430
Georgia, Southern & Florida	398	1,043,311	332,959	1,533,462	237,625	14,054	664,338	83.8	248,780	119,007	59,403
New Orleans & Northeastern	204	239,763	17,495	271,904	33,401	6,478	76,008	59.9	108,776	74,295	49,311
New Orleans & Northeastern	204	1,690,361	128,912	1,961,904	238,951	44,907	587,942	64.6	694,449	440,446	208,539
Northern Alabama	100	48,535	1,141	51,181	10,061	906	17,042	60.4	20,253	13,965	5,148
Northern Alabama	100	380,956	7,866	402,717	91,249	7,952	130,137	63.0	148,564	102,130	34,453
Southern Pacific	8,658	11,268,926	2,377,376	15,079,183	1,371,133	2,492,164	5,468,676	71.0	4,374,629	3,086,412	2,319,900
Southern Pacific	8,657	80,462,431	15,201,987	105,314,239	10,543,517	2,942,378	39,160,925	74.3	27,117,333	17,529,587	11,725,725
Southern Pacific Steamship Lines	....	503,823	61,009	590,528	16,468	17,495	427,605	98.3	9,993	—9,687	—9,855
Southern Pacific Steamship Lines	....	4,209,542	298,157	4,747,794	114,828	145,458	3,215,573	93.6	305,159	173,202	171,587
Texas & New Orleans	4,416	2,828,003	349,111	3,475,585	558,099	122,055	1,189,486	77.4	284,248	466,694	284,909
Texas & New Orleans	4,416	22,939,068	2,266,057	27,533,352	4,242,754	996,117	9,583,920	77.1	6,305,492	3,919,495	2,147,099
Spokane, Portland & Seattle	948	699,021	54,672	811,482	130,607	9,605	281,540	67.3	265,169	192,516	143,072
Spokane, Portland & Seattle	948	4,818,121	311,219	5,565,141	1,142,008	83,428	2,018,378	75.6	1,360,356	777,548	421,219
Tennessee Central	286	185,539	3,734	200,267	38,740	6,659	67,673	77.2	45,594	33,579	15,667
Tennessee Central	286	1,385,693	32,709	1,510,504	279,516	51,057	548,391	79.2	314,449	219,130	88,277
Texas & Pacific	1,936	1,713,147	192,912	2,081,029	239,133	73,984	672,027	71.4	594,390	437,486	344,798
Texas & Pacific	1,936	13,865,950	1,475,528	16,735,940	1,958,090	581,118	5,500,993	73.2	4,487,682	3,264,017	2,407,662
Texas Mexican	162	43,706	364	55,844	11,787	2,979	31,050	106.4	—3,568	—9,380	—10,225
Texas Mexican	162	527,659	3,412	626,048	88,653	23,859	261,650	80.1	124,592	77,503	49,097
Toledo, Peoria & Western	239	193,070	....	196,646	34,393	16,085	41,652	58.1	82,360	53,362	38,747
Toledo, Peoria & Western	239	1,372,203	....	1,372,203	301,279	128,667	328,486	68.7	435,505	298,446	185,871
Union Pacific System	9,900	12,041,758	1,887,825	15,211,380	1,913,257	433,113	4,845,112	68.4	4,810,271	3,459,878	2,456,048
Union Pacific System	9,901	80,246,671	11,916,662	101,245,158	11,822,932	3,483,490	35,400,555	75.6	24,661,543	14,191,144	8,164,291
Utah	111	41,285	....	41,395	11,639	414	10,985	107.7	—3,188	—7,129	—6,033
Utah	111	407,769	....	407,769	74,435	3,835	116,157	93.1	28,199	31,211	—8,139
Virginian	638	1,957,893	3,384	2,002,383	175,540	22,833	263,246	44.0	1,120,480	845,460	908,302
Virginian	638	12,788,361	22,201	13,116,294	1,230,147	185,462	1,924,632	49.1	6,670,164	4,790,164	5,091,301
Wabash	2,410	3,069,694	213,121	3,537,014	554,227	151,577	1,382,711	80.2	699,163	475,362	89,537
Wabash	2,410	24,375,091	1,583,743	27,937,072	3,868,904	1,157,057	11,318,493	80.1	5,561,010	3,808,444	895,012
Ann Arbor	294	314,319	4,488	343,899	29,230	67,112	139,920	76.1	82,400	59,292	47,164
Ann Arbor	294	2,374,662	23,164	2,499,161	231,068	12,888	2,618,599	83.9	401,400	230,068	123,485
Western Maryland	865	1,233,264	9,914	1,272,786	157,799	38,564	340,912	66.8	423,074	358,074	372,499
Western Maryland	875	9,224,578	56,927	9,560,546	1,103,372	313,522	2,760,973	69.9	2,880,848	2,335,848	2,384,602
Western Pacific	1,208	1,390,357	1,359,077	2,549,434	250,240	63,129	542,423	76.3	365,341	277,536	365,341
Western Pacific	1,208	9,187,259	450,465	9,890,941	1,179,242	489,004	3,951,035	86.8	1,303,842	629,305	201,833
Wheeling & Lake Erie	508	1,314,382	1	1,401,356	174,430	35,059	396,029	63.4	513,358	357,717	426,554
Wheeling & Lake Erie	508	8,218,518	30	8,628,300	1,026,670	281,832	2,714,525	70.7	2,525,424	1,513,212	2,015,119

